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THE

TRANSACTIONS

OF THE

YORKSHIRE NATURALISTS' UNION.

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1878.

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For the better working of the various branches of Science, five Sections have been formed, each having its own officers and committee.

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TRANSACTIONS OF THE
YORKSHIRE NATURALISTS' UNION.
Series B:—VERTEBRATA.

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THE BIRDS OF YORKSHIRE:

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BY
WILLIAM EAGLE CLARKE,
OF LEEDS,
Secretary of the Vertebrate Section.

ACCIPITRES. *FALCONIDÆ.*

AQUILA CHRYSAËTUS *(L.)*

Golden Eagle.

A very rare casual visitant.

The instances of the visits of this noble species to any part of England being extremely rare, as evidenced by its absence from most county lists, Yorkshire would seem to have been favoured by them to an unusual degree, no less than six instances of its occurrence within the limits of the county being recorded; chiefly during the winter months.

From the fact that the White-tailed Eagle in the dark plumage of immaturity has been so frequently confounded with the present species, the writer has made the most careful enquiries as to the identification of the following, and many other supposed occurrences which were communicated.

The late Mr. Henry Denny, in a Catalogue of the Animals occurring near Leeds, published in 1840, stated that one was shot at Stockeld Park near Wetherby, on the 29th of November, 1804. I have not been able to trace this specimen, but the authority is so good that I see no reason for doubt.

The York Courant for January 1838 contained an account of an eagle which was trapped during that month at Beningborough, near that city, in which neighbourhood it committed numerous depredations for a week before its capture. The expanse of wing in this specimen was given as 7 feet 10 inches. Mr. Neville Wood, noticing the occurrence in his Naturalist, presumed from the dimensions given that the specimen was referable to this species.

Mr. A. Roberts informs me that one in the first year's plumage was shot at Hunmanby on the 24th of July 1844, on the estate of Admiral Mitford, who presented it to the Scarborough museum.

One instance of its occurrence in the East Riding was reported by Mr. Arthur Strickland to Mr. Thomas Allis of York, and included by that gentleman in his Report on the Birds of Yorkshire, read before the British Association in 1844. I am greatly indebted to his son-in-law, Mr. W. Pumphrey, for the loan of this valuable manuscript.

Captain Edward H. Turton, of Upsall Castle, Thirsk, informs me that a specimen in his museum was shot about Christmas 1851, on Court Moor, Kildale, near Stokesley, in the North Riding, by his father's keeper.

A beautiful young female, in the first year's plumage, was shot in December 1861, at Skerne, near Driffield, in the East Riding, when in the act of eating a hare, by a man called Kemp, gamekeeper to Mr. A. Bannister. It was skinned and set up by Mr. Roberts, of Scarborough, who says it weighed 8 lbs. 5 ozs. This bird is now in the fine collection of the Norwich museum, to which it was presented by Mr. Francis Hoare, formerly of Tranby Park, near Hull, to whom, Mr. W. W. Boulton and Mr. J. H. Gurney, jun., I am indebted for the particulars.

In 1864, one shot at Thornton, near Pickering, and sent by Mr. J. R. Mills of that place to Mr. Graham of York for preservation, was exhibited at the meeting of the Yorkshire Naturalists' Club on the 4th of May.

HALIÆETUS ALBICILLA *(L.)*

White-tailed Eagle.

A rare autumn and winter visitant.

The White-tailed Eagle is but a very occasional visitor, occurring chiefly in the autumn and winter. Although most frequent on the coast, yet it is by no means confined to it, and visits our large inland woods and waters, where its size soon attracts the attention of the gamekeeper, to whose gun or snare it usually falls a victim. In Yorkshire, as in Norfolk, Durham and Northumberland (Birds of N. and D., by John Hancock, 1874) all the specimens that have occurred are in immature plumage, no mention being made of mature specimens. Mr. Stevenson in his 'Birds of Norfolk' attributes this to the well-known habit of the old birds of most of the Falconidæ of driving away their young from the nesting places as soon as they are able to provide for themselves. A specimen, however, in the collection of Mr. A. Clapham, of Scarborough, is interesting, inasmuch as only two or three feathers of the tail show black tips, having only these to cast to attain to maturity of plumage. This bird was shot at Castle Howard in the year 1841.

In Graves' History of Cleveland one is mentioned as having been shot in December 1807, at Staingate, near Danby Lodge, and is possibly the one referred to in the next paragraph.

Mr. Thomas Stephenson of Whitby has kindly obtained for me information of one shot in Stonegate Ghyll many years ago by a man named Pringles whilst poaching by moonlight. This is now in the possession of Mr. Page of Guisborough.

One was shot off the mouth of the Tees on the 5th of November 1823 (Zoologist, 1845, p. 1051).

Mr. C. C. Oxley of Ripon has in his collection an Eagle of this species, shot near Marske Church in October 1836. This is the bird recorded by Mr. John Grey as a Golden Eagle, in the Zoologist for 1845 (p. 1051).

Mr. Patrick Hawkridge recorded in Neville Wood's Naturalist, (1837, p. 324) one shot at Haverah Park, which was presented to the Scarborough Museum by Sir W. A. Ingilby of Ripley Castle.

Mr. Thomas Allis in 1844 mentioned one shot at Okely in the West Riding, which found its way into the collection of Mr. John Childers.

Mr. Sterland in his 'Birds of Sherwood Forest' mentions an immature bird which was shot at Laughton-en-le-Morthen on the 13th of January 1857, after a fortnight's sojourn in the neighbourhood.

In October 1863 one was shot at Speeton Cliffs by Thomas Leng, after several unsuccessful attempts. It was preserved by Mr. Matthew Bailey of Flamborough, who has kindly given me this information, and further states that the bird measured thirty-nine inches from the tip of the bill to the end of the tail, and 7 feet 6 inches in expanse of wing. This bird passed into the collection of Captain Crowe of Speeton. Not very long before this, (Jan. 1861) Leng shot another bird of this species, which is now in the possession of Mr. M. Bailey. In both instances the age is given by Mr. Bailey as about three years.

Mr. Roberts of Scarborough informs me that one was obtained at Wykeham in 1864; and another on Seamer Moor, which, when observed, was mobbed by hundreds of Rooks.

A fine male, shot at Long Pain, Bedale Wood, near Scarborough, on the 17th of January 1865, and sent to Mr. Graham of York to stuff by Lady Downe, was exhibited at a meeting of the Yorkshire Naturalists' Club. Mr. Graham remarked that it had been noticed in the neighbourhood for several winters. This information is however too vague to warrant any opinion as to the maturity or immaturity of the bird.

Mr. Cordeaux mentions (Birds of Humber District), an immature bird shot at Flamborough Head in the spring of 1865, with the remark that this is a locality where it has been frequently observed; also, on the authority of Mr. W. W. Boulton of Beverley, the occurrence during the last ten years of this Eagle, in the young plumage, in Holderness.

One in the Duke of Devonshire's possession at Bolton Abbey was killed by a keeper in the Forest Moors near that place about the year 1871. It was unable to rise at the time, being gorged while feeding on the carcase of a sheep, and the keeper tried to capture it alive, but the bird fought so hard that he was compelled to kill it with his stick.

Mr. P. W. Lawton of Easington informs me that in October 1876 an Eagle of this species frequented Kilnsea, near Spurn, for some weeks, during which period it was often observed.

PANDION HALIÆËTUS *(L.)*

Osprey.

A rare spring and autumn visitant.

In former years the Osprey was not unfrequently observed in the spring, while on the passage to its breeding stations in the north, and again in the autumn while returning to its southern winter quarters. During these migrations the size of the bird and the habits peculiarly its own have caused it to be noticed by those not usually interested in ornithology. Latterly it has become much less frequent, having occurred on four occasions only during the past twelve years, all of which were in Eastern Yorkshire and the vicinity of the coast. This scarcity is in a great measure attributable to the fact that this species no longer frequents its former favourite haunts in Scotland, and its association with the name of that country is now confined to perhaps a pair or two, if even that.

This species having now become so rare, it seems desirable

to give particulars of all the occurrences which have come under my notice.

Miller in his History of Doncaster (1804) mentions the Osprey as occurring in that neighbourhood.

In 1823 it was recorded as frequenting the little mountain tarn known as Semerwater, in Wensleydale, on the authority of Mr. Fothergill, surgeon, of Askrigg (Whitaker's Richmondshire, p. 416).

Mr. Leyland of Halifax (1828) had seen two specimens, one from Luddenden and one from Hebden Bridge.

About 1837 one alighted on the rigging of a vessel off Flamborough Head and was captured. This specimen was presented to the museum at Scarborough by Mr. E. Tindall. In the same year one was observed near Hackness and another shot near Scarborough. These occurrences were communicated to Neville Wood's Naturalist (1837, p. 329 & 489) by Mr. P. Hawkridge of Scarborough.

Mr. Denny of Leeds in 1840 mentioned a specimen at Farnley in 1833 and another at Stainland Dean near Halifax.

Mr. John Heppenstall of Sheffield recorded in the Zoologist (1843, p. 14 & 247) three specimens as having occurred there prior to that date.

In May 1843 one visited the river Swale at Catterick, and after remaining in that neighbourhood for a month, was at last shot on the 20th of June; this was recorded in the Zoologist (1844, p. 443) by Mr. Mark Booth, with the remark that another had been seen in the same locality five years before.

Dr. Farrar (1844) mentioned that he had met with four specimens:—A female at Water Fryston near Pontefract; another female at Stainborough Park, near Barnsley; a male at Worsborough Reservoir; and a female on Burnsall Moor, near Bolton Abbey, in April 1844, whose stomach was gorged with the remains of a Red Grouse.

One in the collection of Mr. C. C. Oxley was shot at Marske in Cleveland, as recorded in the Zoologist (1845, p. 1135) by Mr. M. Booth. Mr. Oxley informs me that he has another specimen obtained near Redcar.

One at Whitby in the year 1851 or 1852, recorded in Morris's Naturalist (1853, p. 84) by Mr. J. Braim. Another in 1853 is mentioned in the same journal (1854, p. 80) as having occurred at Richmond; the authority being Mr. H. Smurthwaite.

In 1860 a fine male was shot at Sherburn, near Scarborough, and recorded in the Zoologist (1860, p. 7104) by Mr. A. Roberts.

Mr. Thomas Rhodes, late of Leeds, mentions one observed by him at Hemsworth Dam, near Wakefield, in 1861 or 1862.

Mr. Roberts mentions in Theakston's Scarborough Guide (1871) that two were killed near that place in 1862.

A male shot whilst fishing in the river Swale near Richmond on the 6th of July 1862 (Naturalist, 1865, p. 337).

Mr. James Ingleby informs me that one was shot at Grantley Hall, near Ripon, about the year 1863.

A beautiful old female was shot at Skerne, near Driffield, on the 4th of May 1864, and its occurrence communicated to the Zoologist (1864, p. 9207) by Mr. W. W. Boulton of Beverley.

The species is included in the catalogue of birds which had been observed by the late Mr. Charles Waterton in Walton Park (Dr. Hobson's Life of Waterton, 1866).

At Harewood Bridge one was captured in June 1867 and recorded by Mr. George Roberts in the Yorkshire Post (Feb. 15th, 1868).

Mr. F. G. S. Rawson informs me that one was shot in the Ryburne Valley, near Halifax, in June or July 1867.

Mr. Richard Richardson of Beverley writes me that a male was shot on the river Hull by Mr. Matthew Armstrong on the 8th of May 1867.

One shot on Filey Brigg on the 14th of May 1867 is mentioned by Mayhall in his History of Yorkshire (iii. p. 3).

In 1871, as Mr. Richardson of Beverley informs me, a female was trapped at Pocklington on the 5th of September, and on the 16th of the same month a male was shot at Hotham by Mr. Brown, the keeper at Hotham Hall.

Mr. Frederick Boyes records the occurrence of a fine male shot at Cherry Burton, near Beverley, on the 22nd of November 1876 (Zoologist, 1877, p. 158).

One was caught in a pole trap at Gransmoor, near Bridlington, on the 30th of June 1877; the fact being communicated to the Zoologist (1877, p. 389) by Mr. J. H. Hutchinson. The individual presented in September of the same year to the Zoological Society by Mr. W. H. S. Quintin, and deposited in their gardens at Regent's Park, London, may possibly be the same bird.

Mr. William Lister of Glaisdale mentions it as having occurred at Egton Bridge.

FALCO CANDICANS *J. F. Gmelin.*

Greenland Falcon.

A rare and accidental visitant.

The confusion that formerly prevailed among ornithologists with regard to the specific identification of the Northern Falcons is now a thing of the past, and has resulted in the recognition of three distinct species, one of which—the true Jer Falcon of the Scandinavian Peninsula—has not yet been ascertained to have occurred in the British Isles.

Under the names of Gyr and Jer Falcon, I have records of eight occurrences in this county: three of them (two certainly and one probably) are referable to the species under consideration and the remaining five to the Iceland Falcon; and it is satisfactory to know that the specific names of some of them, which would otherwise have been open to grave doubt, have been determined by the highest authorities.

The first occurrence of this species of which we have any record was in 1837, and was communicated to Neville Wood's Naturalist (1837, p. 53 & 163) by Mr. Thomas Allis of York, of whose accounts the following is an abstract:—A fine adult specimen of the Jer Falcon was shot at Sutton-upon-Derwent, by

a man named Storthwaite, on the 15th of February 1837, and passed into Mr. Allis's possession. It was shot in each wing, but not wounded in the body. Like most birds of the family when in captivity, it sulked and entirely refused all food for the first four days; it was still alive on the 26th of April, and seemed likely to do well. That this was a Greenland Falcon we have high authority in Mr. John Hancock, the author who was the first to point out the distinction between this and the Iceland Falcon. In a letter to Mr. Thompson (Natural History of Ireland; Birds, i. p. 32) Mr. Hancock says, "I know of one instance of the capture of *F. Grœnlandicus* in this country; it was a mature bird, and was in the collection of Mr. Ellis [Allis] of York, up to the time of his collection being sold; it was obtained in Yorkshire, and, to the best of my recollection, was shot about the year 1836."

The second bird is now in the Scarborough museum (where I have seen it) and is a fine mature female. It was shot on the 25th of November 1854, by a person named Dixon, near Robin Hood's Bay, on the moors of Sir John Johnstone, Bart., and recorded in the Zoologist (1855, p. 4588) by Mr. A. Roberts of Scarborough, by whom it was preserved. The length from the point of the beak to the end of the tail was $20\frac{3}{4}$ inches, full extent of the wings 3 feet 10 inches, weight 3 lbs. 3 ozs.; the crop was overloaded with the entrails of some animal, the stomach with feathers and portions of a grouse.

In the third instance the bird was not absolutely identified, but from the description may, I think, be referred to this species. It is recorded in Mr. Cordeaux's 'Birds of the Humber District,' under the head of Jer Falcon, as follows:—"Was shot at Flamborough several years since by that well known bird-slayer, Thomas Leng, fisherman. Leng was shooting rock-pigeons at the time from the Speeton rocks, and says that at some distance the bird looked quite white, but on a nearer view he distinctly saw that its plumage was speckled with black, although it was altogether a very light bird. It fell to the bottom of the cliff; and he sent his son down, also descending himself to recover it, but was unsuccessful, as the rising tide had carried it out."

FALCO ISLANDUS *J. F. Gmelin.*
Iceland Falcon.

A rare and accidental visitant.

As stated in my remarks on the Greenland Falcon there are five instances of this species having occurred in Yorkshire.

The first was shot about the middle of March in the year 1837 on the moors near Guisborough, as recorded by Mr. John Hogg, F.R.S., in his catalogue of the Birds of S. E. Durham and N. E. Cleveland (Zoologist, 1845, p. 1052). It is there described as "a young bird, having all the upper parts of a brown ash-colour, the white occurring on the edges of the feathers. The under parts white, with large longitudinal brown spots." This specimen is referred to as being in its first year's plumage, and in the collection of Mr. John Hancock, in a letter addressed by him to Mr. Wm. Thompson (Natural History of Ireland; Birds, i. 32.)

In the collection of Mr. C. C. Oxley of Ripon is a fine specimen of the Iceland Falcon, which is said to have been shot on Marston Moor, in December 1826 or 1836. This bird was purchased by Mr. Oxley at the sale of the collection of the late Dr. Hobson of Leeds.

The third occurrence was in November 1860, when a fine young female was shot at Upper Poppleton, near York, as mentioned in the Zoologist (1861, p. 7312) by Mr. David Graham of York, by whom the bird was purchased for five shillings. This bird is now in the collection of Mr. A. Clapham, of Scarborough, who possesses not a few Yorkshire rarities, and who has also been at considerable trouble in furnishing valuable information and replying to my numerous enquiries.

The fourth specimen is also in Mr. Clapham's collection: it was shot by Mr. Lorrimer on Filey Brigg, on the 4th of October 1864, while in company with another of the same species, which escaped. This specimen for some time proved a puzzle to Mr. Clapham's friends, who thought it to be a young Peregrine. At length it was submitted to Mr. H. E. Dresser, author of the "Birds of Europe," for his opinion; in a letter from that

ornithologist (with a perusal of which Mr. Clapham has favoured me) he states: "The other bird is not a Jer Falcon but an Iceland Falcon, not in mature plumage and most probably if not certainly a male. It is a capital specimen."

Mr. Thomas Stephenson of Whitby informs me that about the year 1865, Mr. Kitching, the bird preserver of that town, found one nailed on a wall along with other 'vermin' at Newton House near Whitby, by the gamekeeper Parker, who shot it. Mr. Kitching removed the bird, but it had been exposed too long to make a specimen of; he retained portions and thinks they belong to this species.

The Jer Falcon supposed to have occurred on the Leckton Moors near Pickering, and recorded in the Zoologist (1864, p. 9244) by Mr. Cordeaux—on the authority of Mr. Jones of Bridlington, who sold it to Mr. Clapham of Scarborough,—proved to be a Goshawk, and is the one described under the head of that species as being in the singular 'cuckoo' plumage.

FALCO PEREGRINUS *J. F. Gmelin.*

Peregrine Falcon.

A rare resident, a regular autumn and winter visitant.

In former years the records show that the Peregrine was far from uncommon as a resident in the county; and it seems probable that when the sport of falconry was in vogue, and this noble bird in high favour and enjoying a certain degree of protection, there would hardly be a locality suitable for its eyry which was untenanted. But now all this is changed, the protection has long since been withdrawn, and the former favourite so far descended in the scale as to rank as 'vermin' in the estimation of the descendants of its former protectors. Among the places where its eyries have been noted are Goathland, and Killingnab Scar, in Cleveland. It also bred on Black Hambleton, which was the only locality from which Colonel Thornton, as he assured

Montagu, could procure a Tercel (a male) that would kill ducks, although he had tried many from other places.

In the year 1844 Mr. Allis stated that it still continued to breed near Pickering, although becoming much more rare than formerly; also that it had bred in that year at Kilnsey Crag and Arncliffe, both in Wharfedale.

It is an unmistakable pleasure to be able still to claim this noble bird as a resident. A pair or two still breed almost annually in the stupendous cliffs of our coast at Flamborough and Speeton, where its favourite prey the Rock Pigeon is numerous, and occasionally a pair or two also breed inland.

Mr. Cordeaux in the Zoologist (1868, p. 1026), stated that there were two eyries at Flamborough in 1867, one of which was robbed by the climbers. The other pair were more fortunate, and escaped unmolested, the young birds getting off.

On the 3rd of June 1876, the writer was at Buckton and Bempton, between Flamborough Head and Filey, and saw in the possession of the climbers three young in whitish down, which had been taken on the 30th of May. They had come across them quite by accident in the highest portion of the cliff; there was not the slightest sign of a nest, the young being simply on a ledge about four feet wide. On visiting the cliffs I saw both the old birds, the female leaving the ledge from which the young were taken and flying round uttering a very plaintive note. The climbers wished me to purchase these young birds, but this I declined to do, hoping, as I had heard them complain about the trouble of feeding them, and also some mention of putting them again on the eyry, that they might yet be restored to the old birds; unfortunately, however, they eventually found their way to Barnsley (Zoologist, 1876, p. 5000). A pair returned to the same locality in the spring of this year (1879), when I regret to say one of them was ruthlessly shot and the eyry consequently deserted.

Mr. Geo. Brook, ter., of Huddersfield, informs me that in 1871 a nest with four eggs was taken from the Fells on the borders of Westmoreland, and the old male shot. The eggs and bird are now in his collection. I refrain from mentioning the

exact locality in the interest of the birds.

I have been informed of a pair which have this year (1879) reared their young in safety in the Cleveland Hills, but my informant supplied the information on condition that the locality be nameless.

As an autumn and winter visitant the Peregrine is most frequent on the coast, but it also occurs inland, visiting all parts of the county, so that an enumeration of the occurrences would be unnecessary and tedious.

These immigrants are mostly birds in immature plumage. Mr. John Cordeaux in a letter to me mentions this and other species as regular autumn and winter visitors, and further says "in the majority of cases, however, these autumn immigrants amongst the Falconidæ leave the district (Holderness) before the advent of the winter season."

An interesting anecdote related of this species at Flamborough by Mr. M. Bailey of that place appeared in Land and Water (1877, p. 306). I quote Mr. Bailey's words:—

"Being on a cruise at sea on March 31st, ... I saw something that might be interesting to you, that of a fine Peregrine Falcon hawking after sea birds. It was amusing to see him dart at the Guillemots as they sat or floated on the sea. The moment the hawk made a dash at his prey, to his great disappointment, under water went the Guillemot. I watched him for fifteen or twenty minutes, but he never once appeared to touch the water. I was speaking of this to the master of a fishing yawl, who told me that, only a few days previously, when some miles distant from land, he observed a Blackbird chased by a Peregrine Falcon. It was so closely pursued by the Falcon that it took shelter on board the yawl."

A very fine mature female which Mr. W. W. Boulton (Zoologist, 1864, p. 9209) dissected, contained the remains of a Rock Pigeon, including, amongst other portions, one entire foot and shank and a few feathers.

FALCO SUBBUTEO *L.*

Hobby.

A rare casual visitant.

The Hobby is only occasionally observed. The summer months are the usual time for its appearance, but instances are recorded of its having been obtained in the months of October (the 31st), December, and February, contrary to what might be expected of a species regarded as a summer visitor to Britain.

This bird is described by Mr. Hewitson in his British Oology, (1838) as "more common in some parts of Yorkshire than elsewhere." Mr. Heppenstall of Sheffield in 1843 mentions it as pretty generally distributed in that district in the summer months, and Dr. Farrar of Barnsley writing in 1844 says it is far from uncommon. Whatever may have been its abundance in former years in South Yorkshire, it is now, as far as I have been able to ascertain, only to be regarded as a rare casual visitor to that and all other parts of the county. As regards North Yorkshire we find that in Cleveland Mr. John Hogg in his paper read before the British Association at its York session in 1844 (published afterwards in the Zoologist for 1845) describes it as being a rare species and migratory; and Mr. R. Lee, of Thirsk, a taxidermist and accurate observer, states that he has only seen one in his twelve years' experience.

Mr. A. G. More in his paper on the distribution of Birds in Britain during the breeding season (Ibis, 1865) mentions it as breeding occasionally in Yorkshire. He has since informed me in reply to my inquiries that the only locality known to him was Rossington Wood, near Doncaster, and that his informant was the late Mr. Hugh Reid.

I know of one instance of its having nested at Bishop Wood near Selby, in the summer of 1869 (year not quite certain), when its eggs were taken from a crow's nest. This fact was related to me by the late keeper, Wm. Harland, who further informed me that the eggs were in the possession of Mr. A. R. Kell of Barnsley, in whose collection I have seen them.

The following are the instances of its occurrence which have come under my notice :—

In Neville Wood's Naturalist (1837, p. 384) Mr. P. Hawkridge of Scarborough remarks :—This bird is very scarce in our neighbourhood. A specimen was once killed by a boy with a stick at Knapton, near Scarborough, and presented to the museum of that town by Mr. R. Tindall. When we consider the diminutive size of this Falcon, we may venture to pronounce it second to none of its family in point of courage. At the time the individual above mentioned was taken it had just seized a rook.

Mr. Wm. Talbot in his 'Birds of Wakefield' states that he saw one in the flesh which had been shot at Bilham near Doncaster, in February 1845.

Mr. W. H. Raw of Lealholme near Yarm has a fine specimen which he shot in Fryup, in the year 1866.

Mr. Cordeaux in his 'Birds of the Humber District' (1872) says that Mr. W. W. Boulton of Beverley informed him that it is not unfrequently seen near there, and that he has had several during the last few years shot near the river Hull and at Spurn Point.

Mr. F. G. S. Rawson of Halifax informs me that one was shot at Ovenden in 1873.

In 1874 Mr. R. Richardson of Beverley (to whom I am indebted for the information) had two females sent to him for preservation. One of these was shot at Killinwick on the 6th of June and is now in the possession of Mr. F. Boyes. The other, obtained at Flamborough on the 30th of October, is in the collection of Mr. R. Crowe.

At the meeting of the York and District Field Naturalists' Society on the 14th of November 1877, Mr. Helstrip exhibited a fine example shot near York.

In the collection of Mr. Matthew Bailey of Flamborough is a bird of this species shot by the fisherman Leng on the 21st of December 1878, whilst close to the Flamborough Lighthouse. Mr. Bailey has kindly acquainted me with this interesting occurrence.

Mr. R. Richardson of Beverley informs me that he preserved a female for Mr. R. H. Barugh of Bridlington, which had been shot on the 7th of June 1879.

In addition to the above instances, the Hobby is reported to have occurred in the undermentioned localities, no precise information being given :—

Halifax (Mr. Leyland, 1828); Barden and Bolton (Mr. H. Denny, 1840); Kirklees and Castle Hill, near Huddersfield (Mr. Inchbald, 1859); Killingbeck, near Leeds (Mr. John Dixon, 1853); Carlton and the moors West of Barnsley (Mr. T. Lister); Bridlington (Mr. M. Lawson, 1879); Stainland (Mr. C. C. Hanson, 1879); a summer visitor to Scarborough but not plentiful (Mr. A. Roberts, 1879).

FALCO VESPERTINUS *L.*

Red-footed Falcon.

A rare and accidental visitant.

In the year 1830 this species, which appears to have been to this date an entire stranger to Britain, occurred almost simultaneously in this county and in Norfolk. The first of these occurrences took place in our county in the month of April, when a male was shot near Doncaster, which was reported to the Linnean Society at its meeting on the 1st of May 1832 (Transactions, xvii. p. 533) in a letter from Mr. H. S. Foljambe. Four specimens were shot in Norfolk during the following month.

Since 1830 it is reported to have been obtained on twelve different occasions. One in the Sheffield museum, said to have been killed in that neighbourhood, is recorded in the Zoologist (1843, p. 247) by Mr. Heppenstall.

In May 1844 a fine female was shot in Stainer Wood, near Selby, by a gamekeeper of the Right Hon. E. R. Petre. It passed into the possession of Mr. Massey Hutchinson of Selby (Zoologist, 1844, p. 654).

TRANSACTIONS

OF THE

YORKSHIRE

NATURALISTS' UNION.

Series C:

INVERTEBRATA:

(EXCLUSIVE OF THE ARTICULATA).

The Conchological Section of the Yorkshire Naturalists' Union was founded by a vote of the Council of the Union on the 2nd of December, 1876, and at the same time Messrs. William Nelson of Leeds and Joseph Wilcock of Wakefield were appointed the nucleus of the committee, with power to add to their number.

The Section first met at Pontefract on the 2nd of April, 1877, when Mr. Nelson was elected president, and Mr. Henry Crowther, of Leeds, secretary; and a small committee was also appointed.

Other meetings were held in the year 1877, at Wetherby (May 22), Wakefield, for Nostell Priory (June 16), Saltaire, for Shipley Glen (July 14), Goole (August 6), and Copley, for Norland and Greetland Moors (September 8).

The First Annual Meeting of the Section was held at Wakefield, on the 6th of October, 1877, when the President and Secretary were re-elected. The annual report of the Section stated that 28 species and varieties of recent and 6 species of fossil mollusca had been observed at the meetings.

Mr. Crowther afterwards resigned the secretaryship, and on the 22nd of April, 1878, at Pontefract, Mr. John W. Taylor, of Leeds, was elected to that office.

It was arranged that prior to commencing the series of annual reports, a preliminary review of the present state of knowledge should be prepared by the Officers of the Section, for publication in the 'Transactions.'

REPORT
OF THE
CONCHOLOGICAL SECTION:
1877.

ANNOTATED LIST OF THE LAND AND FRESHWATER MOLLUSCA KNOWN TO INHABIT YORKSHIRE.

By W. NELSON and J. W. TAYLOR, Leeds,
President and Secretary of the Conchological Section.

In preparing the annual report on the Mollusca (Land and Freshwater) inhabiting Yorkshire, it appears to us of primary importance first to issue an annotated list of the species at present known to occur in our county, as a basis for future research. Feeling as we do that generalizations as to the range or distribution of species are unwarranted, and may in certain cases lead to serious error, unless based upon an extensive and widespread series of reliable observations, we have therefore carefully collected all accessible records and added thereto the observations of ourselves and others. We also purpose continuing the good work begun by Dr. Gwyn Jeffreys of reducing to the synonymy of widely distributed European species many of the forms described as distinct by American and other authors. We shall, in addition, draw attention to doubtful allocations, and in cases where there are conflicting opinions, or the identity of species is first suggested by ourselves, we intend to reproduce the descriptions, so that our readers may be able to follow their own judgment as to their identity or otherwise, though we point out all cases that seem to us improbable or erroneous.

For nomenclature and classification Jeffreys' 'British Conchology' is adopted as a basis, occasion being taken to incorporate such information as we have acquired in the nine years which have elapsed since Jeffreys published his supplement, mainly the

results of an extended and careful study of the Pulmonate group, to which our own observations have been more particularly directed.

We must also express our thanks to numerous friends, especially to Mr. W. Denison Roebuck of Leeds, Dr. Parsons, F.G.S., of Goole, and Mr. J. D. Butterell of Hull, for their kind and prompt response to our request for co-operation.

Localities not our own have affixed to them the initials of the conchologist from whom we have received the information. We do not however in any case pledge ourselves to the correctness of the identification where the sign of verification (!) is not given.

EXPLANATION OF INITIALS AFFIXED TO LOCALITIES.

C.A.—Charles Ashford, of London (*Q.J.C.*, i. 19).
J.D.W.—J. Darker Butterell, of Hull.
W.H.B.—W. H. Broadhead, of Leeds.
J.B.—James Beevers, of Leeds.
W.B.—W. Bean, of Scarboro' (Theakston's Guide to Scarboro').
T.W.B.—T. W. Bell, of Leeds.
H.C.—Henry Crowther, of Leeds.
J.C.—J. Conacher, junr., of Huddersfield.
R.M.C.—R. M. Christy, of Brighton.
J.Dal.—Rev. J. Dalton (Mag. N. H. and Nat. 1859).
J.D.—John Dixon, of Leeds.
D. and W.—Dixon and Watson, 'British Land and Freshwater Shells.'
J.E.—J. Emmett, of Boston Spa.
J.S.G.—J. S. Gibbons, M.B., of Southampton.
J.G.—John Grassham, of Leeds.
J.W.—Joseph Hebden, of Wakefield.
R.W.M.—Rev. R. W. Maxwell, of Goole.
H.P.—H. Pollard, of Leeds.
L.P.—Lister Peace, of Huddersfield.
H.F.P.—H. Franklin Parsons, M.D., F.G.S., of Goole.
W.D.R.—W. Denison Roebuck, of Leeds.
R.S.—Robert Scharff, of Bordeaux.
H.S.—H. Shaw, of Leeds.
A.P.T.—A. Peckett Taylor, of Mapplewell.
G.T.—G. Taylor, of Wakefield.
J.W.—J. Wilcock, of Wakefield.
J.Wh.—J. Whitwham, of Huddersfield.

For convenience' sake we have thought it desirable to classify the records according to locality. The map contemplated by the Union not yet being published, we have been led to make for our purpose a division of the county into 24 Districts, based upon its physical configuration; note being also taken as far as possible of the geological features. In tracing the boundaries of the various districts, it has been found desirable to adopt arbitrary and easily defined lines where nearly coincident with the true line. The central district is almost entirely defined in this manner, while the other districts can be very conveniently based on the river-basin system.

The manufacturing districts of the South-West being much more minutely investigated than other parts of the county, subdivision has been carried to a greater extent in this part.

In defining the following districts we have not space to do more than give a sufficient indication to enable our readers to trace them for themselves with the aid of the Union Map (when published), of those of "West Yorkshire," and other documents.

Of the 24 Districts, 22 drain eastward into the German Ocean, while the following 2 are in the

WESTERN DRAINAGE SYSTEM.

1. Mersey.—The Saddleworth district is separated from the remainder of the county by the water-shed line on the crest of Standedge Moors.

2. Lune and Ribble.—Separated from the rest of the county by the water-shed line running nearly due N. and S.

EASTERN DRAINAGE SYSTEM.

3. Vale of York.—Bounded by the Railway from Arthington past Knaresbro', Boroughbridge and Malton as far as Burdale Station—thence by road S.W. past Raisthorpe, Gills, Pluckham, Huggate, Warter, Burnby, Hayton and Beilby, to Harlthorpe Station—thence by the Railway through Selby to Crossgates Station—thence by water-shed line to Arthington.

4. Humber.—Bounded on the North by the Central

District; on the East by the rail from Hayton to Market Weighton, and thence by the East bank of the Market Weighton Canal; and on the West by the Roman road from Micklefield to Castleford, thence road through Houghton to Pontefract, rail to Snaith, and thence to Adlingfleet.

5. Hatfield and Thorne.—Adlingfleet to Snaith—thence South bank of Don to Doncaster, and rail to Bawtry.

6. Trent.—Rail from Bawtry to Doncaster, thence South bank of Don to Sheffield and rail southward to county boundary.

7. Went Vale.—Rail from Pontefract to Snaith, thence South bank of Don to Doncaster, road to Hickleton, water-shed line to Crofton Station and rail to Pontefract.

8. Dearne.—"Went Vale" boundary from Doncaster to Crofton, thence water-shed line by Ryhill and Notton to Staincross, along Woolley Edge to Midgley, through Denby Grange to Shelley and Denby Dale Station, thence by rail nearly to the Don, water shed to Wortley and through Wortley Park to Westwood Station, thence to Rotherham, and South bank of Don to Doncaster.

9. Don.—Rail northwards from the county boundary to Sheffield, thence South bank of Don to Rotherham, "Dearne" boundary to Shelley and along the water-shed line to the county boundary at Ramsden Edge.

10. Colne.—County boundary from Ramsden Edge to Cumberworth, Shelley and Kirkburton, thence to Cooper Bridge Station, thence water-shed line westward to the county boundary on Blackstone Edge.

11. Upper Calder.—Bounded on the South by the "Colne" district, thence rail from Cooper Bridge Station past Mirfield and Heckmondwike to Low Moor and Bierley, thence water-shed line to county boundary on Haworth Moor.

12. Lower Calder.—Rail from Crofton to Pontefract, thence road to Houghton and Castleford, rail by Stanley and Ardsley to Tong, thence to Bierley, and rail by Heckmondwike to

Kirkburton, thence water-shed line by Shelley, Denby Grange, Midgley, Woolley Edge, Staincross, Notton and Ryhill to Crofton Station.

13. Airedale.—"Upper" and "Lower Calder" boundary from Lancashire to Castleford, Roman road to Micklefield, "Vale of York" boundary to Arthington, and water-shed to Ilkley Moor, thence turning to Keighley Moor and Lancashire Border.

14. Malhamdale.—A watershed district, being the upper portion of Airedale, separated from District 13 by the water-shed line from Ilkley Moor to Keighley Moor.

15. Wharfedale.—The basin of the Wharfe, separated from the "Vale of York" by the railway at Arthington and Weeton.

16. Nidderdale.—Separated from the "Vale of York" by the railway at Knaresbro'.

17. Wensleydale.—Separated from the "Vale of York" by the Knaresbro' and Boroughbridge Railway.

18. Swaledale.—Separated from the "Vale of York" by the rail from Coxwold to Boroughbridge.

19. Upper Tees.—The upper portion of the Tees basin as far East as Hornby.

20. Lower Tees.—The lower portion of the Tees basin; also including all the country drained by the streams falling into the sea North of Flat Scar, near Saltburn.

21. Eskdale.—The country drained by streams between Flat Scar and Old Peak, South of Robin Hood's Bay.

22. Upper Derwent.—Separated from the central district by the rail from Coxwold to Wharram—also includes the coast line from Old Peak to Beighton.

23. Chalk Wolds.—East bank of Market Weighton Canal to Market Weighton, and rail to Hayton, thence "Vale of York" boundary to Wharram, thence road to Sledmere, Foxholes, Wold Newton and Beighton to sea. For East boundary see next district.

24. Holderness.—Separated from District 23 by the rail from Bridlington Quay to Lowthorpe and the West bank of the river Hull from Lowthorpe to Hull town.

Class CONCHIFERA.

Order LAMELLIBRANCHIATA.

Family SPHÆRIIDÆ.

Genus SPHÆRIUM, Scopoli.

A group of widely diffused bivalves, whose metropolis appear to be in the Western Hemisphere.

There are four British species, all of which are found within the limits of our county, inhabiting ponds or canals, though occasionally met with in quickly running streams.

Mr. Temple Prime, in his 'Monograph of the American Corbiculadæ,' proposed an arrangement of *Sphærium* which would separate our British species into two distinct genera having as their types *L. corneum*, S., and *S. lacustre*, Müll.

As will be seen, we have reduced to the rank of synonyms several shells described as distinct by American authors, two at least of which, *S. ovale*, Fér., and *S. Pisidioides*, Gray, are now pretty generally allowed to have been introduced from the New World.

It is to be regretted that in the county we have no special student of this and the allied groups, which may account for the comparative paucity of the records, our own attention being more specially directed to the Pulmonifera.

Sphærium corneum, (L.)

Sphærium Vermontanum, Prime.

Lovell Reeve, in his 'British Land and Freshwater Shells,' says this species is closely represented in the United States by Say's *C. partumeia*; this is however erroneous, *S. partumeium*, Say, being synonymous with *S. lacustre*, Müll., as shown hereafter.

It is however closely allied to, if not identical with, *S. rhomboideum*, Say, as pointed out by Dr. Jeffreys, in his 'Comparison of the Mollusca of Europe and Eastern North America.'.

3. *Vale of York*—Tadcaster, H.C. Wetherby, H.C.
4. *Humber*—Milford! Knottingley, J.W. Hambleton! Selby! Goole, common, R.W.M.
6. *Trent*—Conisbro', J.W.
7. *Went Vale*—Ackworth, common, C.A., Norton! Pontefract! Bentley near Doncaster.
8. *Dearne*—Canal, Barnsley!
10. *Colne*—Luddenden, J.C., Huddersfield, plentiful, J.Wh.
12. *Lower Calder*—New Miller Dam, J.W. Canal at Wakefield! Canal, Normanton.
13. *Airedale*—Leeds and Liverpool Canal at Bingley! Kirkstall! Rodley! Swillington! stream, Castleford! Rothwell, H.S.
17. *Wensleydale*—Birk Rigg, H.C. Ripon, common, J.D. River Ure at Cover Bridge!
22. *Derwent*—Scarbro', W.B.
23. *Chalk Wolds*—Brantingham, abundant, J.D.B. Brough!
24. *Holderness*—Barmston and Skidby Drains, J.D.B.

Var. **flavescens**, Macgill.

4. *Humber*—Goole, R.W.M.
10. *Colne*—Canal, Huddersfield, plentiful, J.Wh..

Var. **Pisidioides**, Gray=Sphærium Vermontanum, Prime.

This variety is, according to Dr. Gwyn Jeffreys, identical with *S. Vermontanum*, Prime. An inhabitant of Lake Champlain and Vermont.

10. *Colne*—Deighton, J.Wh.

Sphærium rivicola, (Leach).

Closely represented in the Western Hemisphere by the *S. dentatum* of Prime, a very nearly allied species, which appears to differ only in its smaller size and rather more abruptly truncate posterior margin, judging from specimens received from Mr. Hemphill, of California, and collected in that region. *S. rivicola* is interesting in having been first collected in England at Doncaster, but the localities where it has been found in the county are as yet but few.

3. *Vale of York*—River Foss, York, W.H.B.
8. *Dearne*—Canal, Barnsley! River Don, Doncaster, H.F.P.
10. *Colne*—Elland (now extinct) J.C.
12. *Lower Calder*—New Miller Dam, J.W. Canal, Normanton! Canal at Heath!
13. *Airedale*—Leeds & Liverpool Canal at Bingley! Shipley, H.P., Armley! Leeds!
22. *Derwent*—Scarbro', W.B.

———:o:———

Sphærium ovale, (Fér.)

Cyclas transversa, Say.
Cyclas constricta, Anthony.

This elegant shell is of a type found in South America and West Indies; it is identical with *S. transversum*, Say, and is supposed to have been introduced into this country.

Mr. Anthony's *C. constricta* is a malformed specimen of this species, with the valves constricted by a furrow up the centre of each valve.

Dr. Gray supposed this species to be allied to *S. rhomboideum*, Say, an error pointed out by Dr. Jeffreys, that species being very near to if not identical with *S. corneum*.

4. *Humber*—Goole, R.W.M.
8. *Dearne*—Canal at Barnsley!
12. *Lower Calder*—Canal at Normanton! Brighouse!

———:o:———

Sphærium lacustre, (Müll.)

Cyclas partumeia, Say!
Cyclas securis, Prime.
Cyclas truncata, Linsley.

Dr. Jeffreys regards *C. partumeium*, Say, as a synonym of this species, a view in which we coincide. He also considers *S. truncatum*, Linsley, as a variety.

From a study and comparison of the description of *L. lenticula*, Gould, we are inclined to regard it also as another form of *S. lacustre*.

A variety found near Huddersfield by Mr. Whitwham and submitted to us, closely agrees with the description of Prime's

S. Jayanum; we however have not had the opportunity of comparing with authentic specimens of Prime's species.

3. *Vale of York*—Newton Kyme!
4. *Humber*—Ferrybridge!
7. *Went Vale*—Stagnant pond, Ackworth, scarce, C.A.
10. *Colne*—Farnley Tyas, J.Wh.
12. *Lower Calder*—Pond at Sandal.
13. *Airedale*—Ponds, Halton! Canal, Kirkstall! Stream, Roundhay! Pond Scarcroft!
17. *Wensleydale*—Seven-ponds, North Stainley, J.D.
22. *Derwent*—Scarbro', W.B.
23. *Chalk Wolds*—Spring-dyke, 'small, whitish and semi-transparent,' J.D.B.

Var. **Ryckholtii**, Norm.=Sphærium securis, Prime.

The *S. securis* of Prime, a native of North America, is considered synonymous with this variety by Dr. Jeffreys.

10. *Colne*—Farnley Tyas, J.Wh.
13. *Airedale*—Ponds, Halton!

—:o:—

Genus PISIDIUM, C. Pfeiffer.

As in *Sphærium*, there are several species of this puzzling group common to both the Eastern and Western Hemispheres, though like Prof. Forbes, Mr. Temple Prime, a great authority on the Corbiculadæ, regards the American forms as representative only.

The result of our own examination of the species which we possess leads us to regard several of the forms as identical with our species, a view in which we are supported by the opinion of Dr. Jeffreys, Dr. Baudon, &c.

Considerable confusion exists in this genus on account of the great variability of the species, and consequently nearly every author has different views of the limits of specific range.

Pisidium amnicum, (Müll.)

Pisidium dubium, Say.

According to Dr. Jeffreys, *Pisidium dubium* of Say, perhaps better known as *P. virginicum*, Bourg., is the same as this species.

No varieties of this fine shell have been designated by British authors; continental conchologists, however, describe eight or more, several of them as distinct species. We have no doubt some of these will be found in Yorkshire by attention being drawn to them.

4. *Humber*—Goole. common, R.W.M.
7. *Went Vale*—Stream, Bentley !
8. *Dearne*—Canal, Cudworth !
10. *Colne*—Elland, common, J.Wh.
11. *Upper Calder*—Halifax !
12. *Lower Calder*—New Miller Dam, J.W. Canal, Stanley ! Canal, Heath !
13. *Airedale*—Bingley, J.W. Canal, Armley, H.S.! Kirkstall, H.S.! Newsam Green, H.S.! Oulton!
17. *Wensleydale*—River Ure at Coverbridge !
15. *Wharfedale*—River Wharfe at Otley, H.S. !
22. *Derwent*—Scarbro', W.B.
24. *Holderness*—Barmston Drain, J.D.B. Leven Canal, J.D.B.

——:o:——

Pisidium fontinale, (Drap.)

Pisidium Adamsi, Prime.

Dr. Jeffreys reduces to the rank of a synonym of this species the *P. Adamsi* of Prime, a native of North America.

A specimen of this species found at Bentley, near Doncaster exhibits a constriction of the front margin, a peculiarity that has been made use of by many authors as a basis to describe many new species of Sphæriidæ, the present specimen being the *Pisidium sinuatum* of Bourg.

3. *Vale of York*—Knaresbro'! Tadcaster, H.C.
7. *Went Vale*—Common in ponds, Ackworth, C.A.
10. *Colne*—Canal, Elland, common, J.Wh.
12. *Lower Calder*—New Miller Dam, J.W. Pond, Sandal, J.H.
13. *Airedale*—Roundhay Lake!

Var. Henslowana, (Shepp.)

This is regarded by some authors as distinct, seven varieties being enumerated by continental conchologists, some of them destitute of the umbonal appendages.

6. *Trent*—Conisbro', J.W.
7. *Went Vale*—Artificial stream, Ackworth, common, C.A. Laminar umbonal appendage but slightly developed.
12. *Lower Calder*—Wakefield and Barnsley Canal, J.H.
13. *Airedale*—Newsam Green, H.S.! Osmondthorpe!
24 *Holderness*—Leven Canal, J.D.

Var. **pulchellum**, Jenyns.

12. *Lower Calder*—Ossett, L.P.
13. *Airedale*—Pond at Potternewton!
22. *Derwent*—Scarbro', W.B.

Var. **cinereum**, Alder.

Pisidium abditum, Hald.!

We are of opinion that Haldeman's *P. abditum* is the same as this species, judging from a study of the description contained in Prime's 'Monograph of the Corbiculadæ' which we reproduce below, and a comparison of authentic specimens received through the kindness of Prof. Bolles of Maine.

PISIDIUM ABDITUM, Haldeman.—Shell rounded-oval elongated, very inequilateral, moderately convex, margins well rounded, beaks placed nearer the posterior side, small, slightly raised; surface smooth, striæ not distinct, epidermis variable, generally light straw color; hinge-margin very nearly straight; cardinal teeth small, separate, the anterior tooth larger and more prominent; lateral teeth small, not much elongated.

13. *Airedale*—Leventhorpe, common! Stream, Potternewton
17. *Wensleydale*—Snape, H.C.!
22. *Derwent*—Scarbro', W.B.

Pisidium pusillum, (Gmelin).

Dr. Jeffreys places in the synonymy of this species the *Pisidium abditum*, Hald. We are unable to agree with this view, but consider it the same as *P. cinereum*, Alder, as pointed out under the head of that variety.

3. *Vale of York*—Pannal, W.D.R.! Wetherby!
7. *Went Vale*—Ponds, Hazelgreen, near Ackworth, C.A.
10. *Colne*—Hey Wood, local, J.Wh.
12. *Lower Calder*—Stanley! Wakefield!
13. *Airedale*—Neville Hill, near Leeds! Osmondthorpe! Scarcroft!
22. *Derwent*—Scarbro', W.B.
24. *Holderness*—Leven Canal, J.D.B., Keyingham Drain, J.D.B.

Var. **obtusalis**, C. Pfeiffer.

Pisidium ferrugineum, Prime.
Pisidium ventricosum, Prime.

Considerable diversity of opinion prevails as to the identity

of this form with those inhabiting North America; Dr. Baudon, a great authority on this subject, regards *P. ventricosum* of Prime, a native of Massachusetts, as the same species, while Dr. Gwyn Jeffreys, disagreeing with this view, thinks *P. ferrugineum* of Prime more properly referable to it.

Judging from a comparison of the descriptions and figures, with authentic specimens of *P. obtusale*, we incline to the opinion of Dr Jeffreys, but not having had opportunity of comparing authentic specimens of the objects themselves, we cannot speak confidently.

We append the descriptions of *P. ferrugineum* and *P. ventricosum.*

Pisidium ferrugineum, Prime.—Shell small, rounded-oval, globose, slightly inequilateral; anterior side somewhat produced; margins rounded; beaks tubercular at apex, very distant; surface smooth; epidermis light yellow; hinge-margin rounded; cardinal teeth large, separate, anterior tooth more prominent; lateral teeth distinct.

Pisidium ventricosum, Prime.—Shell small, rounded-oval, globose, ventricose, somewhat oblique, slightly inequilateral, anterior side produced, posterior subtruncate; beaks small, protuberant, distant, situated towards the posterior side; surface smooth, yellow; hinge-margin curved; cardinal teeth separate; lateral teeth short.

13. *Airedale*—Leventhorpe!
22. *Derwent*—Scarbro', W.B.

Pisidium nitidum, Jenyns.

Allied to *Pisidium æquilaterale* of Prime, a North American species.

6. *Trent*—Conisbro', J.W.
7. *Went Vale*—Ackworth, rare, C.A.
10. *Colne*—Elland Canal, common, J.Wh.
11. *Upper Calder*—Luddenden, J.C.
13. *Airedale*—Bingley, J.H.
17. *Wensleydale*—North Stainley, D. and W.
22. *Derwent*—Scarbro', W.B.
24. *Holderness*—Spring Dyke, J.D.B., Skidby Drain, J.D.B., Keyingham Drain, J.D.B.

Pisidium roseum, Scholtz.

We incline to regard this shell as having its affinities more with *P. fontinale*, Drap., in accordance with the views of Scholtz, the author of the species, rather than with *P. nitidum*, Jenyns, as held by Dr. Jeffreys.

7. *Went Vale*—Stream, Bentley, near Doncaster!

——:o:——

Family UNIONIDÆ.

The lakes and rivers of the Western Hemisphere harbour great numbers of this group; comprising, according to the enumeration of Dr. Isaac Lea of Philadelphia, 720 species, divided into a great number of genera, and exhibiting a very great variation in size, solidity and exterior form and sculpture.

The total number found in Germany, according to Kreglinger, s fifteen, of which we have but five in England.

Genus UNIO, Philippson.

The three species found in this country are all recorded for our county. The *U. margaritifer* has been placed in another genus, *Margaritana*, Schumacher, by some authors, mainly on account of the less developed posterior tooth.

——:o:——

Unio tumidus, Philippson.

Only one variety—the *U. radiata* of Jeff.—has been found in Yorkshire, out of the many forms that have been described by British and continental authors.

This and the following species belong to the genus *Lymnium*, Oken.

4. *Humber*—Goole, R.W.M.
7. *Went Vale*—River Went!
8. *Dearne*—Boat pond by Canal, Doncaster, H.F.P.
12. *Lower Calder*—Agbrigg!
13. *Airedale*—Canal, Kirkstall! Rodley!
22. *Derwent*—Scarbro', W.P. (as *U. restratus*, Studer).

Var. radiata, Jeffreys.

12. *Lower Calder*—New Miller Dam, J.W., Canal, Agbrigg! River Went, not uncommon, C.A.

Unio pictorum, (L.)

Five varieties of this species are enumerated by Moquin Tandon, in addition to which Dr. Jeffreys and others describe four more, none of which have as yet been recorded as found in Yorkshire. In addition to these, nine varieties are described of *Unio Requienii*, Michaud, a species regarded by Reeve as synonymous with *U. pictorum*, L.

4. *Humber*—Goole, R.W.M.
7. *Went Vale*—River Went.
8. *Dearne*—Canal, Barnsley! Boat pond by Canal, Doncaster, H.F.P.
22. *Derwent*—Scarbro', W.B.

Unio margaritifer, (L.)

Margaritana arcuata, Barnes!

The *M. arcuata* of Barnes, a native of North America, is synonymous with this species, and frequents rocky streams by preference near the sea coast as in our own country.

This species belongs to Schumacher's genus *Margaritana*.

21. *Eskdale*—River Esk, plentiful, D. & W.
22. *Derwent*—Scarbro', W.B.

Var. Roissyi, Michaud.

Yorkshire, Sowerby (Jeff. Brit. Con., i., 38).

Var. sinuata, Lamarck.

21. *Eskdale*—River Esk, H.C.

Some authors regard this variety as distinct and place it in another genus—*Lymnium*, Oken—associated with *U. pictorum*, *U. tumidus*, &c., on account of the development of the posterior lateral tooth, and a variety of it—*compressa*—is described.

Genus ANODONTA, Lamarck.

Anodonta cygnea, (L.)

Anodonta fluviatilis, Lea!
Anodonta implicata, Say.

Dr. Gwyn Jeffreys regards *A. fluviatilis*, Lea, as synonymous with *A. cygnea*, L., a view with which we agree. The *A. implicata*, Say, he also thinks is a variety.

4. *Humber*—Goole, R.W.M., Selby Canal, H.F.P., Moat of Cawood Castle, H.F.P.
7. *Went Vale*—Nostell, C.A., Hemsworth Reservoir, C.A., Bentley! Campsall Park, J.C., River Went, J.Wh.!
8. *Dearne*—Barnsley Canal!
12. *Lower Cader*—New Miller Dam, J.W. Wakefield and Barnsley Canal!
13. *Airedale*—Canal, Armley! Rodley! Killingbeck, nr. Leeds! Shepherd's Pond, Camp Road, Leeds! Halton! Roundhay Park!
22. *Derwent*—Scarbro', W.B.
24. *Holderness*—Hornsea Mere, J.D.B., Leven Canal, J.D.B., Barmston Drain, J.D.B., Risby Park Pond, fine, J.D.B.

Var. incrassata, (Sheppard).

7. *Went Vale*—Nostel, J.C.
22. *Derwent*—Scarbro', W.B.

Var. Zellensis, (Gmelin).

10. *Colne*—Abundant at Elland, J.Wh.
22. *Derwent*—Scarbro', W.B.

—:o:—

Anodonta anatina, (L.)

This form is, according to many conchologists, only a variety of *A. cygnea*, L., the variability of that species being notoriously great.

4. *Humber*—Goole, R.W.M.
8. *Dearne*—Canal, Barnsley, J.H.
22. *Derwent*—Scarbro', W.B.
24. *Holderness*—Hornsea Mere, J.D.B.

Var. radiata, (Müll.)

8. *Dearne*—Canal, Barnsley, J.H.

Var. ventricosa, C. Pfr.

22. *Derwent*—Scarbro', W.B.

TRANSACTIONS

OF THE

YORKSHIRE

NATURALISTS' UNION.

Series D:

ARTICULATA:

(INSECTA, MYRIAPODA, CRUSTACEA & ARACHNIDA.)

The Entomological Section of the Yorkshire Naturalists' Union was founded by a vote of the Council of the Union on Dec. 2nd, 1876, and at the same time Messrs. William Prest, of York, and G. T. Porritt, F.L.S., of Huddersfield, were appointed the nucleus of the committee, with power to add to their number.

The Section held its first meeting at Pontefract on April 2nd, 1877, when Mr. Prest was elected president and Mr. Porritt secretary, with a Committee including about 24 entomologists in various parts of the county.

The First Annual Meeting of the Section was held at Wakefield, on the 6th of October, 1877, when the President and Secretary were re-elected.

The preparation of the Reports was placed in the hands of various members, each taking a definite group of insects. It was also decided not to confine the scope of the Reports to the work done at the meetings, but to include therein all that had been done within the county. The orders reported upon for 1877 were :—

Macro-lepidoptera	Mr. G. T. Porritt, F.L.S.
Micro-lepidoptera ...	Mr. William Prest.
Diptera	Mr. S. L. Mosley.
Hemiptera Homoptera Family Psyllidæ ...	Mr. S. L. Mosley.
Hymenoptera	Mr. W. Denison Roebuck. Mr. S. D. Bairstow.

REPORTS

OF THE

ENTOMOLOGICAL SECTION:

1877.

YORKSHIRE MACRO-LEPIDOPTERA IN 1877.

By G. T. PORRITT, F.L.S., HUDDERSFIELD.

Secretary of the Entomological Section.

The universal testimony of our Yorkshire lepidopterists seems to be that the season of 1877 has been one of the worst ever experienced. We may add also that this, judging from the records, has been the case not only in our own county but throughout the country. No doubt a good many circumstances tended to bring about this unfortunate state of things, and two of them have been evident enough. In the first place it must be remembered that during the best part of the summer of 1876 rain (which has always been considered the worst enemy to lepidopterous life) fell incessantly for weeks, and must have prevented even the depositing of millions of eggs; and of those that were deposited, if hatched at all, the young larvæ would only emerge to be drowned in thousands. After this we could not have expected 1877 to be very prolific in moths, even had the weather turned out everything to be desired; but when it proved, as it did, almost the rainiest year on record in Yorkshire, and notably so in the West Riding, having very few consecutive fine days throughout the whole year, the wonder is that lepidoptera have existed at all. Another reason is, that "sugar," the Noctua hunter's indispensable bait, and to which, two years ago, Noctuæ flocked in myriads almost the whole season through, has this year been an utter failure, and as great a contrast to 1875 as could possibly be imagined. Night after night, and month after month, did we go out and bait our trees most deliciously, but often, nay generally, not a moth, good, bad, or indifferent, would appear for our pains.

Had the season been a good, or even an average one, the task of writing the first paper for our "Transactions," on behalf of the Entomological Section, would have been an easy and pleasant one; but as it is there is little to write about, and had it not been for the most extraordinary and exceptional occurrence of *Colias Edusa*, the record would have been barren indeed.

SPECIES NEW TO THE COUNTY.

One species only has been taken which is quite new to the county, viz.:—

Carsia imbutata.

This good addition to our list was taken by Mr. Charles Smethurst, of Leeds, on Goole Moor, on the occasion of the excursion of the Union to Goole, on Bank Holiday, August 6th. When we remember that the only addition made to our list last year, namely, *Eupithecia subciliata*, was taken by him at Aldborough on a similar occasion, and singularly also on the August Bank Holiday, we must feel how valuable our excursions are in leading us out of the old beaten tracks; and even then, what can be done even in a few hours when a number are enthusiastically bent on the same object.

NEW LOCALITIES.

The species interesting as having been taken in new localities in the county are (exclusive of *Colias Edusa* and its variety *Helice*, of which we shall say more afterwards):—

Species.	*New Locality.*	*Captor.*
Pericallia syringaria ...	Barnsley	John Harrison.
Geometra papilionaria	Barnsley ...	John Harrison.
Hyria auroraria ...	Goole	Yorks. Nat. Union.
Acidalia fumata ...	Shipley Glen, Bradford	Yorkshire Naturalists' Union.
Larentia cæsiata ...	York... ...	William Prest.
Eupithecia linariata ...	Barnsley	John Harrison.
Eupithecia pulchellata	Barnsley ...	John Harrison.
Eupithecia trisignata...	Sharlston, Wakefield	Yorkshire Naturalists' Union.
Notodonta dictæoides	Barnsley	George Jackson and John Harrison.

Species.	*New Locality.*	*Captor.*
Notodonta ziczac ...	Barnsley	John Harrison.
Cymatophora fluctuosa	Barnsley	John Harrison.
Acronycta leporina ...	Barnsley	John Harrison.
Caradrina Morpheus..	Huddersfield ...	G. T. Porritt.
Cucullia verbasci ...	Selby	Thomas Foster.
Cucullia chamomillæ..	Leeds	Alfred Denny.
Stilbia anomala ...	Shipley, Bradford	J. W. Carter.

The more particularly noteworthy of these are:

Hyria auroraria, taken on the occasion of the Union's visit to Goole Moor, on August 6th, and making only the second locality for the species in Yorkshire.

Larentia cæsiata. York is an out-of-the-way place for this, though it abounds in our stony moorland districts.

Cymatophora fluctuosa is a good addition to the Barnsley fauna, and is more satisfactory from having been bred from several larvæ beaten out of birches.

Stilbia anomala is perhaps the most interesting of all, as being not only new to Bradford but to the West Riding, previously having only occurred on our east coast.

ABUNDANCE OF COLIAS EDUSA.

In looking over the rarities that our county has produced during the year, the species that stands out pre-eminently before all others, not for its greater rarity, but on account of the interest attaching to it, is undoubtedly *Colias Edusa.* So much has been said and written on this, the most extraordinary visitation of this species, not only in Yorkshire but throughout the whole of Britain, ever remembered by our oldest lepidopterists, (nor can any previous record be found of anything approaching it) that all of us are thoroughly acquainted not only with the particulars and peculiarities of the circumstance, but with the various theories advanced to account for it. It is therefore quite unnecessary to occupy our limited space with it again. Suffice it to say that the species was observed or taken in every part of the county, and in most cases in localities where it had never been previously known to occur; whilst as to numbers, in one or two instances, single

collectors secured in a few days perhaps as many as had ever been previously taken in the county altogether!

We had two distinct broods: the first appearing at the very beginning of June, and continuing right through the month, the second and more numerous one being on the wing in August and September. Both broods occurred in profuse abundance in the southern counties of England, notably the second brood, which in many localities actually flew in myriads, and many clover fields and railway embankments must have had quite a golden appearance from the thousands of *Edusa* flitting about them. There is little doubt that our county's first brood were stragglers from the South, though it certainly is not a little singular that they should be observed here as early—on the same day in fact—as they were first noticed there. Probably many of the second brood reached us in the same manner, though from their abundance and freshness it is more than probable that some had been bred with us. Our climate generally, however, is such that we dare not hope they have established themselves. The variety *Helice* was apparently not observed in the first brood, but several were taken from the second. The following list is given in chronological order as near as can be obtained :—

Date.	Locality.	No. of Specimens.	By whom Captured, Observed, or Recorded.
June 3	Huddersfield	One ...	S. L. Mosley
,, ...	Scarborough	One ...	William Robinson
,, ...	Arthington	One ♀..	H. Bendelack Hewetson
,, ...	Huddersfield	One ...	John Conacher, jun.
,, ...	Upper Wortley, Leeds	One ...	Thomas Benn
June 9	Scarborough	One ♀..	William Robinson
,, 11	Batley	One ...	Oscar Wildsmith
,, 11	Manningham	One ...	W. H. Keeton
,, 16	Goole	One ...	H. Franklin Parsons
,, 16	Leeds	One ...	— Abbott, jun.
Between June 3 and 20.	Bradford	Several	J. W. Carter
	Wakefield	One ...	John Spurling and H. Sims
	Leeds	Two ...	Edward E. Prince
	Middlestown	One ...	George Jackson
	Wath	One ...	Dr. Payne
	Leeds	One ...	John Wm. Taylor
	Kirkheaton	One ...	Richard Jessop
	Huddersfield	Several	G. T. Porritt
	Meanwood	One ...	W. E. Clarke
	Armitage Bridge ...	One ...	Rev. G. C. B. Madden
	Ilkley	One ...	Bernard Hartley
June 18	Leeds	One ...	Wm. Denison Roebuck

DATE.	LOCALITY.	No. of Specimens.	BY WHOM CAPTURED, OBSERVED, OR RECORDED.
June 20	Richmond	One ...	Rev. G. P. Harris
,, 24	Saltaire	One ...	John Firth
,, 30	Bolton Abbey	One ♀..	George Roberts
,, (End) ...	Huddersfield	Two ...	Walter S. Varley
,, ,, ...	Barnsley	One ...	J. Goodyear
July 1	Huddersfield	One ...	James Varley
Aug. 15	Low Moor	One ...	
,, 31	Arthington	One ...	Charles Smethurst
August	Arthington	Two ...	Matthew Taylor
,, ...	Scarborough	Three	Henry Marsh
,, ...	Raskelf, nr. Easingwold	One ...	George Tyers
Sept. 1	Scarborough	Several	George Tyers
,, 1	Askern...	One ...	William Nelson
,, 5	Adel...	One ...	Thomas Grassham
,, 9	Wakefield	Over a dozen..	William Talbot and Henry Lumb
,, 12	Wakefield	Two ...	William Talbot
,, 14	Gledhow (Leeds) ...	One ...	Thomas Grassham
,, 15	Leeds	Two ...	John Grassham
,, 18	Adel	One ...	Henry Marsh
,, 22	Adel	One ...	George Tyers
,, 23	Barnsley	One ...	John Harrison
,, 30	Bingley	One ...	E. P. P. Butterfield
(September)..	Leeds	Several	John Grassham
,,	Wakefield	Ninet'n	Henry Lumb
Oct. 2	Lartington	One ...	J. Gardner
(No date).....	Barnsley	One ...	John Harrison
,, ...	Barnsley	One ...	F. Brady
,, ...	Barnsley	Thirt'en	E. Massie
,, ...	Barnsley	One ...	Messrs. Fogg and Cook
,, ...	Barnsley	Three	W. J. Cope and others
,, ...	Selby	Thirty	Thomas Foster
,, ...	York	Com'on	W. Prest and R. Cook

The few examples of the pale variety *Helice* have been taken as follows:—One at Richmond on September 27th, by Mr. J. Sang, very singularly the only specimen of Colias he saw; two at Wakefield in September, by Mr. Henry Lumb, and two at York by Mr. Hind's two sons. Full particulars of the captures of many of the specimens of *Edusa* will be found in Vol. III of the "Naturalist."

RARITIES IN 1877.

Amongst the rarities our county has produced during the year are the following:—

On the 14th of June, Mr. William Robinson chased and nearly captured a **Vanessa Antiopa** at Harwood Dale, about eight miles from Scarborough.

A fine **Acherontia Atropos** was taken at York, September 14th, by Mr. C. D. Wolstenholme. One was taken at Yeadon and is now in the Leeds Naturalists' Club's local collection.

Of **Sphinx convolvuli** we have four occurrences, viz.:—a specimen taken by a boy, at rest on a tree at Heaton, near Bradford, recorded by Mr. J. W. Carter; a specimen at York; one at Rothwell by Mr. Charles Smethurst; and lastly a full grown larva at Barnsley was brought to Mr. John Harrison.

Of **Sphinx ligustri** (which, although a common southern moth, is scarce in the north), two larvæ were found at York by Mr. Ripley.

The 25th of October produced our greatest rarity for the year, in two examples of **Deiopeia pulchella** seen on the wing in stubble fields on the east coast by Mr. Peter Inchbald, of Hovingham, York; may this bright moth turn up more abundantly to gladden our eyes in future autumns!

Notwithstanding the bad season, about an average number of **Acronycta alni** have been secured, namely five, four of them in the larval state, the other an imago. Of these, three have fallen to our York friends—one to Mr. R. Cook, one to Mr. Stewart, and one (the imago) to Mr. Inchbald on June 27th. The two other larvæ were both found at Wakefield; the first on September 9th, by Mr. William Talbot's son, the second a few days later, on a sycamore tree, by Mr. A. Hall.

NOTICEABLE RECORDS.

Of other species, which though not rare may be worthy of mention, as showing the distribution of species in Yorkshire:—

Nudaria senex is recorded from York.

Liparis monacha from Bishop's Wood, by Mr. Thos. Foster.

Orgyia gonostigma from the same locality.

Epione vespertaria at York, as usual.

Nyssia hispidaria was found near York early in March by Mr. Inchbald.

Boarmia roboraria at Bishop's Wood, by Mr. Thos. Foster.

Geometra papilionaria has been taken rather freely and in several places, as Shipley Glen, Raskelf, and Barnsley.

Acidalia immutata at York, by Messrs. T. Wilson, W. Prest, and William Simmons.

A. emarginata also at York, by Mr. Prest.

Four **Eupitheciæ: trisignata, albipunctata, pimpinellata,** and **tenuiata** at York and district, by Mr. Prest.

Collix sparsata at York, by Mr. T. Wilson.

Lobophora sexalata, bred from larvæ taken at York the previous year by Mr. Jackson.

Thera firmata, Phibalapteryx lignata, and **Scotosia vetulata** all at York, by Messrs. Prest and Simmons.

Scotosia undulata at Bishop's Wood, by Mr. C. Smethurst.

Petasia cassinea, Ptilodontis palpina, Notodonta dictæa, N. dictæoides, and **N. dodonæa** at York, by Messrs. Smith and R. Cook.

Notodonta dromedarius at Leeds, Huddersfield, &c.

Cymatophora fluctuosa at York, by Mr. Thomas Wilson.

Acronycta menyanthidis at Goole and Halifax, by Mr. Charles Smethurst and others.

Agrotis agathina at Huddersfield, by myself.

Noctua neglecta at Adel Moor, Leeds, by Mr. W. G. Smith.

Tæniocampa leucographa and **T. populeti** at Bishop's Wood, by Messrs. Prest and Robinson.

Tethea subtusa commonly at Huddersfield, by myself; and at Bishop's Wood.

Polia flavocincta in abundance at Huddersfield, by myself.

Epunda viminalis at York, by Mr. Prest.

Hypenodes costæstrigalis at York, by Mr. Prest.

The interesting order Pyrales seems to be very indifferently represented in our county, and particularly so in the western division, and this may account for the fact that most of our

lepidopterists take but little trouble in working for the various species.

Scoparia pallida has been taken at York by Mr. Prest.

Scoparia cembræ swarmed in thousands in my field in July and August; they were very variable, too, some being of a very pale bone color and with scarcely any markings, though perfectly fresh; others being of the very dark variety known as **Scotica**, of which I took five or six, with every shade between these two extremes, whilst the markings in many cases were most distinct and beautiful.

Whilst among the Pyrales it may be worth while recording in our "Transactions" that the first published description of the larva of **Scopula lutealis** is that which appeared in the "Entomologists' Monthly Magazine" of November 1877, from a larva I had the pleasure of describing; found on a dock leaf near my house.

VARIETIES, ETC.

Our county has sustained its reputation for varieties, several extraordinary and interesting forms having been taken or bred. As usual in Yorkshire, most of the specimens shew a decided melanochroic tendency, whilst one shews an equally decided inclination to the opposite direction of leucochroism, which although perhaps not so good as a variety, is much more interesting as a Yorkshire specimen. This is a very pale buff-colored **Chortobius Pamphilus** from Bradford, and now I believe in the possession of Mr. S. L. Mosley, of Huddersfield. The others include a very dark and peculiar **Vanessa urticæ**, also from Bradford; a most beautiful female of **Arctia mendica** in which the black spots are confluent. This form occasionally crops up in *A. lubricipeda* and *A. menthastri*, but we never before saw it in *mendica*. This also was bred at Bradford. A very peculiar **Epione vespertaria** was taken at York; a beautiful olive **Phigalia pilosaria** taken at Harrogate by Mr. H. Sims, of Wakefield; an almost black **Polia flavocincta** from Bradford; &c., with any number of black **Amphydasis betularia** (the var. **Doubledayaria**) all over the county as usual.

Lastly, amongst "late occurrences" (or early?) is a male **Phigalia pilosaria**, taken on a gas lamp at Huddersfield by Mr. S. D. Bairstow, on December 30th!

This is the result of our season's work so far as I have been able to ascertain it. As I wrote at the beginning of this paper, it is not satisfactory, but the season has been against us, and perhaps proportionally we have done as well as most other counties. If the members of our section will work, I doubt not we shall have a much grander total at the end of 1878.

Highroyd House, Huddersfield.

YORKSHIRE MICRO-LEPIDOPTERA IN 1877.

By WILLIAM PREST, York,

President of the Entomological Section.

In recording the work done by the Micro-Lepidopterists of Yorkshire during the past year, I am sorry the task has not fallen into abler hands than my own. Having only a very limited knowledge of the various groups of micro-lepidoptera, and only the observations of myself and two or three members of the York and District Field Naturalists' Society to assist me, the result must be very unsatisfactory. I shall commence with the Crambites, simply because I have paid more attention to that group than to the Tineina proper. It being, in reports of this nature, quite unnecessary to name the commonest species observed, I shall only mention those that are local, moderately common, or new to the county.

Crambus Warringtonellus. I took this local species quite commonly on Thorne Waste during the Union's excursion there in August, and it is, I believe, quite new to Yorkshire; it has no doubt been overlooked or passed by as some common species. They were in fine condition, but I should say at least three weeks late.

C. selasellus. I took two or three in Askham Bog, where in fair years it is moderately common.

C. inquinatellus. Odd specimens occurred all through July and August at Sandburn and Stockton-on-the-Forest.

Ephestia elutella. One of the most interesting features of the Wetherby excursion, was the exhibition (by Mr. G. C. Dennis of York) of a large sheet of web spun by the larvæ of this species. In August 1876 a large room in a chicory warehouse at York was filled to about a foot from the ceiling, and when opened in February 1877, the ceiling and walls were found to be entirely covered with a fine web, and the top layers of chicory were spun together in galleries, and inhabited by thousands of small dirty-white larvæ;

the piece of web exhibited was taken from the ceiling whole; it most resembled fine kid and seemed to diffuse a warmth when one came near it, and I think myself it is spun either for warmth or locomotion. I had some larvæ given me, but was not at first certain of the species; my first impression was *elutella*, and then after, I thought it might be *Plodia interpunctella;* however in June I bred some *elutella* from the pupæ, and therefore the problem was solved. Since then I bred during the first week in December two specimens of the imago from some of the old chicory I had by me in a box, and have now larvæ still feeding on the same chicory. I have no doubt the mildness of last winter was suitable to the development of this species, and persons having warehouses of this sort should look a little oftener into them if they wish to keep their goods clean, for I think this is a good example of what a small destructive insect can accomplish.

Plodia interpunctella. Many specimens were bred by Mr. G. C. Dennis and myself, from currants, raisins and caraway seeds, York.

Phycis betulella. Of this rare and local species I took three specimens at Sandburn, near York, in the latter part of July and first week in August. My friend Mr. J. Smith of Bramham also took four or five specimens. It is, I believe, new to our Yorkshire fauna.

P. carbonariella. Was very common on Thorne Waste in August, and I also took it commonly in July on Strensall Common.

P. abietella. The late Mr. James Robinson, of York, took a splendid specimen of this species in Sandburn Wood; it is, I believe, very rare in Yorkshire.

P. roborella. The larva of this pretty species is not uncommon at Bishop's Wood and Sandburn. I bred a fine series from larvæ taken in June; they were beaten from oak. It is a very lively larva.

Pempelia palumbella was very common on Strensall Moor and Sandburn in July.

Rhodophæa tumidella. I took a worn specimen at Sandburn in July.

Tortrix sorbiana. I bred a fine series from larvæ beaten from oak at Bishop's Wood in June.

T. xylosteana. A fine series, bred from rolled up leaves of poplar, taken in June. Bishop's Wood.

T. cinnamomeana. Several specimens of this species were beaten out of spruce and Scotch firs by Messrs. Robinson, C. Simmons, Jackson, and myself in August, at Sandburn, being late for this species.

T. viburnana. Abundant both in the larva and imago state at Sandburn.

T. Branderiana. I bred a fine series from pupæ sent me by Mr. Doncaster, of Sheffield, who takes it in that district.

Amphysa Gerningana. I took a fine series of this pretty species at Sandburn the first week in August.

Leptogramma literana. Several fine specimens were taken in October by Messrs. Jackson, Robinson, and myself, at Stockton-on-the-Forest.

Ptycholoma lecheana. I bred a fine series from larvæ taken from poplar at Bishop's Wood in June.

Penthina picana. Several specimens taken flying round young birches, at Sandburn.

P. sororculana. Common on birches, in September. York.

P. prælongana. Bred from birch by Mr. Jackson. York.

Spilonota ocellana. I took several specimens in Askham Bog in July. It was also bred from plum by Mr. G. C. Dennis.

Orthotænia ericetana. I took one at Stockton-on-the-Forest.

Phoxopteryx biarcuana. Taken in June at Sandburn.

P. inornatana. Taken at Sandburn in June; second brood in July and August.

P. ramana. Common at Sandburn in July.

Grapholitha nigromaculana. I took one specimen near Medge Hall at the Goole excursion.

G. obtusana. Abundant at Bishop's Wood in June, flying round hazel.

Hypermecia cruciana. Larvæ common on dwarf sallow in June; imago abundant in July and August at Sandburn.

Batodes angustiorana. I bred a few specimens from larvæ beaten from oak at Bishop's Wood in June.

Pœdisca bilunana. A few at Sandburn and Bramham.

P. profundana. Bred from dwarf sallow by Mr. Jackson, larvæ swept in June. York.

P. opthalmicana. A few specimens taken by Messrs. Jackson, Robinson and myself in October. York.

Ephippiphora bimaculana. Beaten from birch in October at Sandburn and Saltaire.

Retinia buoliana. Beaten from fir at Sandburn.

R. pinicolana. Beaten from fir at Sandburn.

R. pinivorana. Beaten from fir at Sandburn.

Stigmonota internana. I took a fine series on Strensall Common, in June.

S. perlepidana. Taken at Bramham by Mr. J. Smith.

Eupæcilia angustana. Abundant on Strensall Common and Thorne Waste in July and August.

Xanthosetia zoegana. Occurs rarely at Sandburn.

X. hamana. Occurs rarely at Sandburn.

Argyrolepia cnicana. Not uncommon at Bishop's Wood, June and July.

Cochylis stramineana. Not common at Sandburn.

Aphelia osseana. Rare at Sandburn.

TINEINA.

With these insects I am sorry to say I have had very little to do, and therefore my report of this important group will be very

meagre; for I know of no entomologist in Yorkshire who really knows them, since the death of Mr. T. Wilkinson of Scarborough. My observations are only very limited, and therefore my first list must necessarily be very small, when we take into consideration the bad season of 1877.

Nemophora metaxella. Common in Askham Bog.

Micropteryx Thunbergella. One specimen. York.

M. purpurella. Not uncommon in our woods round York.

M. semipurpurella. Not uncommon in our woods round York.

M. subpurpurella. Not uncommon in our woods round York.

Prays Curtisellus. Two or three specimens in July. York.

Cerostoma vittella. One specimen in July. York.

C. radiatella. Bred from larvæ beaten from oak at Bishop's Wood.

C. costella. Bred from larvæ beaten from oak at Bishop's Wood.

Harpipteryx nemorella. Beaten from honeysuckle. York.

H. xylostella. Beaten from honeysuckle. York.

Depressaria costosella. Bred from furze and broom. York.

D. conterminella. Bred from sallow. York.

Gelechia populella. Bred from poplar, June. York.

G. ericinella. I took a fine series at Sandburn and Thorne Waste in August. Not noticed before in Yorkshire.

Chelaria Hubnerella. Not uncommon in Askham Bog.

Pleurota bicostella. Taken on Strensall Common.

Œcophora flavimaculella. I breed this species every year from Angelica sylvestris. Larva in October, imago in July.

Coleophora palliatella. In June last I took seven cases on oak at Bishop's Wood, and bred five imagos of this good species. It is I believe quite new to Yorkshire.

Coleophora pyrrhulipennella. A few cases of this species were taken on Strensall Common by Messrs. Cook and Simmons, in June.

C. genistæ. Cases very abundant on Genista Anglica, Strensall Common.

Cemiostoma laburnella. Common. Larva making blotches in leaves of laburnum.

Nepticula pygmæella. Bred by Mr. Hind of York.

N. pomella. Bred by Mr. Hind of York.

N. oxyacanthella. Bred by Mr. Hind of York.

N. salicis. Bred by Mr. Hind of York.

N. ignobilella. Bred by Mr. Hind of York.

N. angulifasciella. Bred by Mr. Hind of York.

N. tityrella. Bred by Mr. Hind of York.

N. aurella. Bred by Mr. Hind of York.

Pterophorus Bertrami. I took a specimen of this plume at Staddlethorpe Station whilst waiting for the train at the Goole excursion.

P. trigonodactylus. Two or three amongst coltsfoot at Bishop's Wood.

P. acanthodactylus. Not uncommon at Sandburn; and also at Huddersfield for the first time.

P. bipunctidactylus. Two specimens at Sandburn.

P. Loewii. I took one specimen of this rare species at Sandburn.

P. plagiodactylus. Three or four specimens at Sandburn.

P. fuscus. Very abundant. York.

P. pentadactylus. Not uncommon round York.

Alucita polydactyla. Common amongst honeysuckle round York, and often found hibernating in out-houses.

13, Holgate Road, York.

YORKSHIRE HEMIPTERA-HOMOPTERA IN 1877.

(Family PSYLLIDÆ).

By S. L. MOSLEY, Huddersfield.

The Hemiptera-Homoptera and Heteroptera, like the Diptera, are very much neglected, the reasons in the one case being similar to those in the other. Mr. Scott's monograph of this family in the 'Transactions of the Entomological Society of London,' and his kind offer to examine any specimens that may be sent to him, were instrumental in inducing me to take up the *Psyllidæ* as a starting-point; and no doubt if this part of England were worked well in this class many species which before were considered rare would become extremely common, such as *P. alni*, and many new species would come to light and leave a record for future Yorkshire naturalists to be justly proud of.

The principal work I have done in this order has been brought before the Huddersfield Scientific Club, which I believe is the only Society connected with the Union that has done anything in this line. My work only commenced late this season (August), therefore my list of captures is not very long; but, judging from what I have done, I think Yorkshire may be expected to produce a great majority of the British *Psyllidæ*.

COLLECTION AND PRESERVATION.

The best way to collect *Psyllidæ* is by beating into a larva tray or umbrella; putting the species from each tree or plant into separate boxes or tubes and labelling on the spot to prevent confusion, as each species has its particular tree. Kill by means of the cyanide bottle, and mount on small cards like small coleoptera. One or two specimens should have their wings spread out so as to show the venation, as many of the species may be determined

by this. Write under the card the place and date of capture, and the specimen is complete.

LIST OF SPECIES TAKEN IN YORKSHIRE: 1877.

Arytæna ulicis, *Curt.* This must be common, though I have only taken one specimen as yet; Castle Hill, Huddersfield.

Psylla Forsteri, *Flor.* Woodsome near Huddersfield, from alder.

P. alni, *L.* Up to the publication of Mr. Scott's monograph I believe a few specimens only had been taken by himself and Dr. Power. It has since been taken freely near Norwich, and I have taken it very commonly at Woodsome near Huddersfield, and at Askern.

P. fraxinicola, *Först.* Common at Huddersfield.

P. costalis, *Flor.* Common at Woodsome, Huddersfield.

? P. peregrina, *Först.* I sent this species to Mr. Scott under the impression that it was *P. mali;* he however returned it queried *peregrina,* but said he had no doubt it would prove the latter species. I took it at Askern in September, from a hawthorn hedge.

YORKSHIRE DIPTERA IN 1877.

By S. L. MOSLEY, Huddersfield.

I have only been rather over a year in the study, and would therefore that abler hands than mine had undertaken the task of writing what is known of the Diptera of our county, but a little will be better than nothing at all. The species enumerated are what I have taken in Yorkshire, or rather, so far as have been determined for me. I have many others, the names of which I do not know at present, and a considerably greater number no doubt have escaped my notice altogether, so that this list must be taken as very, very far from being complete. Besides, this is one of those departments of entomology that has to be pursued under great difficulties, especially by working men like myself, and of which our Union is for the most part composed. The workers in this department are few and far between, and the consequence is that it is difficult for one to get that friendly help which naturalists should always be as happy to give as they are to receive. One dipterist (Dr. R. H. Meade) has very kindly volunteered to name for me any specimens he could, and on several occasions I have benefited from his considerable knowledge of this order, but still one cannot pretend to trespass unmercifully upon another's kindness, however willing he may be; and to have a box or two of closely allied species of a little known order of insects to name every week is a task only known to those who have tried it. This is one of the "neglected orders," and I have taken it up because it is neglected, especially in this part of the country. Naturalists have little or no inducement to begin with such (at first sight) unattractive insects, and even where a library of natural history books exists, books are only provided on those branches in which there is a general run, and no new tracks are opened for new beginners; the result is that you get a lot all "going in" for the same thing, as is the case with Lepidoptera especially. Books on Diptera are scarce and expensive, and, besides, the best books are written in Latin or German, and as most working naturalists

do not read these languages, and as the English books are so profoundly scientific, a person has to be very enthusiastic if he (or she) gets on at all. My resources have been very limited: one volume of 'Insecta Britannica—Diptera,' a List of the British *Syrphidæ* and *Dolichopodidæ* (Ent. Mo. Mag.), a description of the British species of *Cheilosia* (Ent. Mo. Mag.), and Mr. Walker's notes on the two-winged flies (Entomologist) are what I have had to guide me besides the invaluable help I have received from Dr. Meade in the naming of specimens. Much more progress might be made if naturalists would remember their fellow workers when they are out on the many rambles they take during the summer months; how easy it would be for them to pick up insects they generally pass by as not worth notice, which might prove very choice specimens when they come into proper hands. The lepidopterist, for instance, is frequently taken in by the appearance in his breeding cage of—instead of a glorious *Acronycta alni*—a big ichneumon or dipterous parasite; in a moment of vexation he generally lets the intruder feel the weight of his net handle or some other instrument; whereas, if he would take a little trouble to pin it and put a label on with the name of the species from which it emerged, he would be rendering a real service to science, and I should always be glad to return lepidoptera for such consignments of diptera, which need simply be pinned and labelled in the way named. I have undertaken to write this paper not so much to show what has been done, as to form a starting point for other workers to follow. During the coming year I intend to devote my energies especially to Yorkshire, and I should be very glad either to give or receive any help towards making next year's list of diptera much more complete than ever I should hope to do by individual aid.

CAPTURE AND PRESERVATION.

Beginners in a new line are very often perplexed as to how they should proceed, and a word or two will perhaps serve to clear away the mist some little. The lepidopterist's stock-in-trade is generally sufficient for the collecting of diptera; the gauze net will be required for the capture of specimens on the wing, the

sweeping net for sweeping grass and other herbage in woods, &c. The cyanide bottle will do very well for killing, and about No. 10 pins will be suitable for a great many of the species. My breeding cages I make out of old medicine bottles by cutting them in two with a red-hot poker, and then pasting a strip of paper several times round the top part, letting it hang over the cut edge, so that when it is dry it slips on the bottom half and forms a lid. This kind of cage does very well for the leaf-miners, both dipterous and lepidopterous. After killing the specimens, I pin them and spread out their legs on a sheet of cork, leaving their wings in a natural position, but so that they do not hide the venation or the body; when dry, I put upon the pin a square or circular bit of paper, large enough for the feet to rest upon, bearing the date and place of capture and the captor's initials; the specimen is then ready for the cabinet.

LIST OF SPECIES TAKEN IN YORKSHIRE IN 1877.

Trixa œstroides. Huddersfield.

Sarcophaga carnaria, *L.* Not uncommon in the woods: Huddersfield.

Onesia vespillo. This I believe is common, but my knowledge at present will not allow me to do more than enumerate the species: Huddersfield.

Musca vomitoria, *L.* The blue-bottle fly. Huddersfield.

M. domestica, *L.* House fly. Huddersfield.

M. corvina, *F.* Huddersfield.

Lucilia cæsar, *L.* Green-bottle fly. Huddersfield.

L. cornicina, *F.* Huddersfield.

Anthomyia canicularis, *L.* Common, bred: Huddersfield.

A. mitis, *Meig.* This I suppose is the one that mines the dock leaves so commonly, but I have not yet bred it: Huddersfield.

A. Jacobææ. Larvæ found at Thornhill but not bred.

Dryomyza flaveola, *F.* Common: Huddersfield.

Syrphus Ribesii, *L.* A great many of this genus are common

about ragwort and dandelion flowers, standing on poised wings within a few inches, then darting off upon the least footstep. This and the following two species I have taken commonly in this way: Huddersfield.

Syrphus luniger, *Mg.* Huddersfield.

S. arcuatus, *Fln.* Huddersfield.

S. bifasciatus, *F.* Wharncliffe.

S. balteatus, *Deg.* Almondbury Bank, Huddersfield.

Melanostoma mellina, *L.* Common about dandelion and other flowers: Huddersfield.

Platychirus clypeatus, *Mg.* Common about dandelion and other flowers: Huddersfield.

Syritta pipiens, *L.* There is only one species in this genus and that common at Huddersfield.

Eristalis tenax, *L.*=*vulpinus*, Meig.
Very common: Huddersfield.

E. arbustorum, *L.*=*fossarum*, Wlk.
Common: Huddersfield.

Helophilus pendulus, *L.*=*similis*, Curt.
A very pretty insect. Not rare: Huddersfield.

H. floreus, *L.* Not uncommon: Huddersfield.

Mesembrina meridiana. A few at Storthes Hall, near Huddersfield.

Leptis scolopacea. Common: Huddersfield.

Dolichopus æneus. Common: Huddersfield.

Ocydromia glabricula. Huddersfield.

Empis livida. Huddersfield.

Sargus cuprarius. Huddersfield.

Chrysomyia formosa. Huddersfield.

Scatophaga stercoraria. Abundant: Huddersfield.

Tipula oleracea. Very common: Huddersfield.

YORKSHIRE HYMENOPTERA:

REPORT ON PRESENT STATE OF KNOWLEDGE, AND FIRST LIST OF SPECIES.

By WM. DENISON ROEBUCK, Leeds,

Secretary of the Yorkshire Naturalists' Union.

In contributing one of the series of annual reports upon the entomology of the county which is contemplated by the Entomological Section, it seems advisable, in the case of an order so little studied as the Hymenoptera have been, to prepare in the first instance a preliminary report upon the present state of our knowledge of their distribution in Yorkshire, including a list of the species already on record for the county, so as to form a basis or starting-point from which Yorkshire hymenopterists may commence their investigations.

It also seemed desirable for the benefit of members who may be induced to join in the study of this order, and also for the important purpose of reminding our entomologists (as they need reminding) of the great deficiencies which there are in our knowledge, to make special mention of every well-marked group included in the order, under each group giving a brief sketch of the condition of its literature where there are no available British monographs; also stating the number or estimated number of British species according to the most recent authorities; and giving references to published directions for collection and preservation. To these prefatory remarks succeeds in each case a list of the species already recorded for the county, with localities and other details, and in the case of book-records full references, these records being inserted merely to render the present paper complete, some of them requiring confirmation and verification.

Fortunately it is in my power—thanks to the researches of Mr. Frederick Smith, F.Z.S., of the British Museum, our foremost hymenopterist, who has collected much in our county, more especially round Wakefield—to give a respectably large list of Yorkshire Bees, amounting to five-twelfths of the British list, and

numbering 95, which thus compares favourably with the 71 of Mr. Bold's published list for Northumberland and Durham.

I am also under great obligations to Mr. E. A. Fitch, of Maldon, Essex, for suggestions and information, as well as to others whose aid I have duly recorded in connection with the various groups, such as Mr. Peter Cameron, junr., of Glasgow, the Rev. T. A. Marshall, M.A., F.L.S., now of Antigua, Mr. S. D. Bairstow of Huddersfield, &c.

Mr. Robert Cook of York, who possesses a number of Hymenoptera in his collection, mostly taken about York some 30 or 40 years ago, had some of them named by a Dr. Stephenson of Kentish Town. The names of *Trichiosoma lucorum*, *T. lateralis*, *T. sylvaticus*, *Chrysis ignita*, *Pompilus fuscus*, *P. viaticus*, *Ammophila sabulosa*, *Odynerus quadratus?*, *Vespa vulgaris*, *Colletes succincta*, *Sphecodes gibbus*, *Halictus rubicundus*, *Andrena nitida*, *A. albicans*, *A. nigro-ænea*, *A. fulvicrus*, *A. labialis*, *A. convexiuscula*, *A. xanthura*, *Nomada rufiventris?*, *Melecta punctata*, *Anthidium manicatum*, *Chelostoma maxillosus*, *Anthophora retusa*, *Bombus muscorum*, *B. lapidarius*, and *B. terrestris*, which there occur are not incorporated in my lists on account of the doubts as to whether some of them were not collected outside the county, and also in one or two cases on account of questions of nomenclature.

Very few of my own records are given in the lists included in this paper, as, in order to ensure, so far as I am concerned, a high degree of accuracy, I have reserved my own observations or determinations of species for verification and more detailed and careful study. It is necessary that a solitary worker (for with the exception of my friend Mr. S. D. Bairstow of Huddersfield, who is engaged in the study of *Ichneumonidæ*, I am not aware of the existence of any hymenopterist within our Union, nor, I believe I am justified in adding, within the northern and north midland counties; nor am I aware of the existence of any collection within many miles which might afford assistance) should be extremely careful and cautious in publishing his observations, in the absence of safeguard against error.

EXPLANATION OF SIGNS USED.

! after a locality signifies that I have seen the specimen and have consequently verified the name. A name within parentheses ( ) following a locality is that of the entomologist by whom the specimens were determined, and is not that of the collector.

Family TENTHREDINIDÆ—Sawflies.

The student of this family has at present to labour under the disadvantage of there being no monograph of the British species, although it is understood that one is in preparation for the Ray Society by Mr. Peter Cameron of Glasgow, who is almost the only British student of this group. Consequently the species must be worked out for the present by means of isolated descriptions and foreign works, of which the latest and probably the most useful is the 1st vol. of Thomson's 'Hymenoptera Scandinaviæ' (1871). German works by Hartig ('Die Familien der Blattwespen und Holzwespen' 1837, &c.), Klug, Brischke and Zaddach, and French ones by Brullé and St. Fargeau must also be referred to; also Fallen's papers and the 7th volume of Stephens' 'Illustrations,' in which the sawflies and ichneumons are described. Reference may also be made to the descriptions of new species by Mr. Cameron in the Ent. Mo. Mag., Proc. Glasgow N.H.S., and Scott. Nat. during the past few years, to his monographs of the British species of *Cladius* and *Phœnusa* (Proc. N.H.S. Glasgow, 1876, vol. iii., part i.); and to Mr. May's translations of Vollenhoven's descriptions of Sawflies and their transformations given in the Zool. and Entom. for recent years: these accompanied by beautiful coloured plates originally appeared in the Dutch 'Tijdschrift voor Entomologie.'

In their metamorphoses and habits the Sawflies very much resemble Lepidoptera. The caterpillars are very like those of Lepidoptera in form, differing in the number of claspers, the position of the eyes, and the carriage of the anal segments; they feed on leaves, and may be procured and bred in the same manner. Some of the smaller species are leaf-miners and others are gall-producers. A paper on the caterpillars of sawflies, by

Prof. Westwood, is to be found in the Ent. Ann. for 1858, pp. 122–136, which will be of service to beginners by acquainting them with the leading types of sawfly larvæ, and the chief points of differentiation from Lepidopterous caterpillars.

Some of these larvæ are well known and very destructive to crops, as the "Gooseberry Grub" *(Nematus ribesii)*, the Turnip Sawfly or "Black-jack" (*Athalia spinarum*, &c.), the "slug" larvæ infesting various fruit trees (*Blennocampa* or *Eriocampa* spp.), the corn-straw maggot (*Cephus pygmæus*) and others. The red, kidney-bean-shaped galls on willow-leaves, which are produced by *Nematus gallicola*, are very abundant and well-known.

Directions for collection and preservation will be found in a paper by Mr. Cameron, published in the Trans.N.H.S.Glasgow, 1876, iii. 141.

The number of British species is very imperfectly known and the estimates made by various authors are very conflicting, and mostly unreliable. I am not aware of any recent enumeration, except a list of Scottish species by Mr. Peter Cameron (May, 1878, published by the Nat. Hist. Soc. Glasgow, price 1/6) in which he gives the names and localities of 212 Scottish species, distributed into 37 genera. Mr. Cameron in comparison mentions that there are 268 French and 360 Swedish species. Mr. Cameron has informed me that about 330 species are enumerated in a catalogue of British sawflies which he has now in the press.

For a number of the names in the following fragmentary list I am indebted to the kindness of Mr. Peter Cameron, and of Mr. Frederick Smith, F.Z.S. The species are arranged in the same order as that adopted in Cameron's Scottish List, but the nomenclature is given as in the original records.

Among the records that have come under my notice which, requiring verification or correction of nomenclature, cannot be inserted in the list are:—

Tenthredo neglecta, St.Farg.Mon. 77.,229=*subinterrupta*, Steph.

"Middle of June, Yorkshire and Scotland, J.C." Curtis, B.E. plate 692.

Perineura nassata (L.) I have seen an old record (circâ 1835) of this being "common" either at Hull or Askham.

Athalia centifoliæ is given in the same old MS. as "common at Hull."

Tenthredo cingulata is given for "Hull" on the same authority.

Selandria costalis is marked in the same old record from "Sutton Road Spring."

Lyda cingulata and *Selandria dorsalis* were obtained in 1831 from the Halifax collectors (A. H. Davis in Loudon's Mag. Nat. Hist. 1832, v. 245). With regard to the nomenclature of these Mr. Cameron states that the *Lyda cingulata* of Stephens' collection =*L. hortorum:* and that *Selandria dorsalis* is *S. serva.*

Mr. Robert Cook of York has in his collection a very large *Cimbex*, labelled *maculatus*, which was taken at Heslington, near York, May 28th, 1834.

FIRST LIST OF YORKSHIRE TENTHREDINIDÆ.

Tenthredo livida, *L.* Near Wakefield (F. Smith).

T. arcuatus. Wakefield in July, 1852 (F. Smith, Zool. 1852, x. 3626).

T. zonata, *Pz.* Woolley (F. Smith).

T. viridis, *L.* Wakefield district in July, 1852 (F. Smith, Zool. 1852, x. 3626). Woolley (F. Smith in litt.)

T. mesomela. Woolley Edge, July 25, 1874, Roebuck (Cameron).

T. cincta, *Schæff.*
Macrophya blanda, *Fab.*
M. neglecta, *Klug.*
} Near Wakefield (F. Smith).

Allantus nothus, *Klug.* Pannal, July 12, 1867: Common on buttercups: Roebuck (Cameron).

Athalia spinarum. Wakefield, July 1852 (F. Smith, Zool. 1852, x. 3626).

A. rosæ, (*L.*) Wakefield district, July 1852 (F. Smith, Zool. 1852, x. 3626). Tadcaster (Cameron). Pannal, Sept. 16, 1869, abundant: Roebuck (Cameron).

Dolerus pratensis, *L.*
D. lateritius, *Klug.*
D. gonager, *Klug.*
D. niger, *L.*
Emphytus carpini, *Hartig.*
} Lastingham, near Pickering (Cameron).

Eriocampa adumbrata, *Klug.* Tadcaster (Cameron).

Blennocampa pusilla, *Klug.*
B. alchemillæ, *Cameron.*
} Lastingham, near Pickering (Cameron).

Crœsus septentrionalis, *L.* At Hovingham, in Sept. 1867, the alder bushes were defoliated by these larvæ, which being bred emerged the following April. (P. Inchbald, E. M. M., June 1868, v. 21, to which refer for economy). Wakefield (Cameron).

Nematus capreæ, *Pz.*
N. conductus, *Ruthe.*
} Tadcaster (Cameron).

N. bilineatus, *Klug.* York (Cameron).

N. ribesii, *Scop.* The "Gooseberry Grub." Tadcaster (Cameron). Pannal, July 3, 1867, abundant: Roebuck (Cameron).

N. viminalis. York (Cameron).

N. viminalis, *L.*=*intercus*, Pz.=*gallarum*, De Geer, Htg. Bred from galls on Salix monandra sent to Mr. E. A. Fitch by Mr. P. Inchbald (See Entom. Feb. 1877, x. 29).

N. gallicola, *West.* Near Wakefield (F. Smith; also Cameron).

Cryptocampus medullarius. York (Cameron).

C. angustus, *Hartig.* Bred by Mr. P. Inchbald of Storthes Hall, near Huddersfield, from galls on Salix vitellina, and named by Mr. F. Smith. This was the first instance of its occurrence in Britain. (For economy see E. M. M. 1864, i. 47).

Cimbex sylvarum, *Fab.* Bramham Park: W. H. Taylor (Cameron).

Trichiosoma betuleti, *Klug.* Arthington: W. H. Taylor. Meanwood Valley, near Leeds; larvæ on hawthorn: Roebuck. Imago: W. H. Taylor (Cameron).

Abia sericea, *L.* Richmond (Cameron). In the old record (circâ 1835) before mentioned this is given for "Buttercrambe" and "Nun Appleton Woods." Specimens from the York district are under this name in Mr. Robert Cook's collection.

Zaræa fasciata, *L.* New Miller Dam, near Wakefield (F. Smith). Wakefield (Cameron). Taken near Wakefield in July 1852, by F. Smith (Zool. 1852, x. 3626).

Hylotoma violacea. Lastingham, near Pickering (Cameron).

Family SIRICIDÆ.

Of these very large and conspicuous wood-feeding insects I am not aware of descriptions, or even of a recent enumeration of the British species, so that the British collector is thrown upon Thomson's 'Hymenoptera Scandinaviæ,' and other foreign works for the identification of his specimens. Of the three genera (*Sirex*, *Oryssus*, *Xiphydria*) which Thomson includes in this family, Stephens in 1829 included 9 British species, Curtis in the same year 7, while in 1840 Westwood estimated that there were 10. There is some degree of doubt as to whether the species of the genus *Sirex* are truly natives of Great Britain, or whether they were not originally introduced (as numerous examples still undoubtedly are) with the pine-trees on the wood of which they feed. The various species of coniferous trees growing in Britain are I believe not allowed by botanists to be truly indigenous, and the same doubt rests upon the *Siricidæ* which feed upon them. Mr. Fred. Smith writes me as follows, as the fruit of his long experience in collecting Hymenoptera: "*Sirex gigas*—this insect was one of great rarity before the country got intersected by railways; the wood used as sleepers is largely imported from Norway, &c., and out of this most of the specimens come. The depôt of the imported wood used by the North-Western used to be up in the Hampstead Road, and numbers of the Sirex are occasionally picked up in Camden Town and in the neighbourhood." (Letter dated 28th June, 1878).

Sirex juvencus, *L.* York Minster: the males were taken commonly flying about the tower and alighting on the roof. (A H. Davis in Loudon's Mag. N.H. 1832, v. 245; Curtis, Brit. Ent., plate 253, March 1, 1829). Curtis adds that no doubt they were seeking the females which were issuing from the timbers that supported the roof, and which would be weakened by the constant operations of the larvæ, as well as rendered combustible by the multitude of passages and the quantity of dust created. Mr. Robert Cook of York showed me some specimens of the male, one of them very small in size, which many years ago he took on the towers of the Minster. He tells me that it was known to the collectors of that day as "The Minster Fly," and that the insects were never seen on the Minster after the firing of it by Jonathan Martin in Feb. 1829.

The following extracts from the Stephensian correspondence, sent me by Mr. E. A. Fitch, are interesting:—

"Urocerus juvencus. Top of York Minster. Males abundant. "Fem. rarer, and what is remarkable I have taken the males in "plenty on the top of the minster, where I never saw a female "but always met with them near the ground."—W. C. HEWITSON, *52, Coney St., York, Jan. 3rd, 1828.*

"I sent Mr. Giles (with whom I have long been intimate) 3 "small specimens of a Syrex which we take on the summit of York "Cathedral."—EDWARD HORNER, *Darlington, 21st Feb., 1828.*

Scarborough, taken at sugar, Sept. 1857 (Robert Cook in Ent. W. Int., Oct. 10, 1857, iii. 13)! Barnsley, 1876: a number given to me by Mr. Thomas Lister (W. D. R.) Wakefield, W. Talbot (Cameron).

Sirex gigas, *L.* Common in the West Riding; frequently taken in various parts of Leeds; also received from Ovenden, where three were taken in 1875 by Mr. Joseph Ogden! Common at Wakefield: Mr. Talbot! Mapplewell, near Barnsley: A. Peckett Taylor! Huddersfield: James Varley! Strensall, near York (W. Simmons in 'Naturalist,' October 1876, ii. 46).

Family CYNIPIDÆ—Gall-flies.

As with the Sawflies, this group is not elucidated by any complete work upon the British species, and the numerous papers upon galls and gall-makers which have appeared of late years are scattered through a variety of journals and publications. As to the identification of species (the general works not being forgotten), the most important papers are those by Hartig (1840 to 1843), Giraud (1859), Schenck (1865), Schlechtendal (1870), Marshall (E. M. M. 1867–8, iv.), Müller (Ent. Ann. for 1872) and Fitch (who published in the Entom. 1874 to 1878, vols. vii to xi. inclusive, a series of translations of Dr. G. L. Mayr's work on the European Oak-galls and the insects which inhabit them, with additional notes by himself; the concluding paper giving full references to the articles above mentioned of Hartig, Giraud, &c.) Some very valuable papers on American species were published by Osten Sacken, Walsh and Bassett in the first four volumes of the Proceedings of the Entomological Society of Philadelphia. For an account of the literature of the *parasitic* Cynipidæ refer to p. 121 of the Rev. T. A. Marshall's paper in the Ent. Ann. 1874, where the monographs are distinctively marked. A list of gall-bearing British plants is given by Kidd and Müller (E.M.M. Oct. 1868, v. 118–120, Feb. 1869, v. 216). A synopsis of the genera of Cynipidæ is given by Dr. Förster in the 19th vol. of the Vienna 'Verhandlungen,' 1869.

The number of British species of this group can hardly as yet be considered sufficiently known. The Rev. T. A. Marshall in the Ent. Ann. for 1874, p. 138, enumerated 41 species. In the Entom., Feb. 1877, x. 27 to 31, Mr. E. A. Fitch gave a summary of new and rare gall-producers observed in Britain since 1872, in which he mentioned 19 Cynipidæ, besides insects of other groups. The oak-tree is unusually subject to galls, and seems to afford them a lodgment in every part of its system, both above and below the surface of the ground. In his notes published in 1867 and 1868 (E.M. M. iv.) Marshall described 14 oak-species as indigenous. Ten years' work by Fitch, Cameron, Inchbald, Rothera, &c., have produced such good results that in

October 1878 (Entom., xi. 225) Mr. Fitch was able to give a list of no less than 41 British species infesting the oak-tree alone. It would be a good plan for some member of our Union to study the oak-galls of the County taking Mr. Fitch's papers in vols. vii. to xi. of the 'Entomologist' as his starting-point. The experience gained in this comparatively easy task would afterwards be of service in commencing the study of the galls and Cynipidæ of other plants.

COLLECTION AND PRESERVATION.

Reference may be made to a short paper by Mr. E. A. Fitch (Entom. Aug. 1875, viii. 170). Nothing can be done without breeding; and if the gall is known it is a great help to the identification of the producer, its inquilines and parasites. Every gall contains inmates of these three classes. The Cynips is the true gall-maker; and the difference in economy between parasites and inquilines is that the latter take possession of the gall when made as suitable to their development, not being parasitic on the original owner. Directions for distinguishing the *Synergi* from the true *Cynipidæ* are given by Mr. Fitch (Entom. Oct. 1878, xi. 220). Some species are readily bred by simply placing the gall in a chip box and waiting till the insect emerges. Other and more succulent ones require care and attention and are sure to mould if damp or immature. If so they should be left exposed for a day or two before putting away. Mr. Fitch recommends the air-tight plan of breeding adopted by micro-lepidopterists, and lays great stress on the importance of avoiding confusion by the accidental introduction of other and similar insects which are not actually in the galls. Consequently there should be in the galli-pots the galls only, and neither leaves, twigs nor anything else. Only mature galls should be bred from, and it is no use expecting to breed from the "oak-spangles" collected off the trees: they must be picked off the ground about January and February. Galls when bred from should not be thrown away, as they produce more than one series of inhabitants. If compelled to breed immature galls, the stalk should be placed in water and the gall enclosed in gauze, and under certain circumstances gauze (green

to prevent detection) may be used for galls *in situ*, without removing them from the plant.

Several galls are well-known, including the "Bedeguars" of the wild roses, produced by various species of *Rhodites*, the "Spangle-galls" by various species of *Neuroterus*, the "Oak-apples" of *Andricus terminalis*, and the woody, marble-like oak-galls of *Cynips Kollari*, so very recently introduced into Britain. The rapid diffusion of the last-named after its introduction is only paralleled by that of Dreissena polymorpha, the Zebra Mussel, and of Elodea canadensis, the American Water-Weed. Mr. Smith writes me, June 28, 1878, that "*Cynips Kollari* was introduced upwards of thirty years ago, and for some time was only found in Devonshire, and was known generally by the name of the Devonshire gall."

Some attention has been paid by Yorkshire Entomologists to this family, or rather to galls in general. Amongst others the late Wilson Armistead of Leeds, contemplated the collection of materials for an illustrated work on the subject. A case of galls and their producers was depositedby him in the Leeds Museum, where it may now be seen, although somewhat deranged from neglect. The Rev. T. A. Marshall, also, for some time, resided in this county, at Lastingham, near Pickering. And I believe that Mr. Peter Inchbald, of Hovingham, near York, has studied galls with some attention, though for the most part, as he tells me, he has devoted himself to the dipterous galls of the gall-gnats (Cecidomyidæ), with which he has been unusually successful. It is much to be wished that the information possessed by the two latter gentlemen, or left in Mr. Armistead's papers, should be forthcoming for the 'Transactions' of this Union.

Mr. Fitch tells me that if any members care to send him (to Maldon, Essex) the galls collected, with notes of locality and date, &c., he will supply the names of the makers. He also states that he has no doubt but that the more generally distributed species are to be found in Yorkshire; he has had them all from Nottinghamshire; the only desideratum is the recorder. Mr. Inchbald knows many Mr. Fitch is sure, but the only one actually sent by him is

Diastrophus rubi (see 'Field,' 12th June, 1875).

Aulax sabaudi, *Hartig*, was added to the British list on the authority of Mr. Peter Inchbald, who described specimens from Scarborough (E.M.M., July 1865, ii. 46, and Marshall, E.M.M., May 1868, iv. 274).

Family EVANIIDÆ.

Four genera and 7 species enumerated as British in 1872 by the Rev. T. A. Marshall (Ent. Soc. Cat. of British Hymenoptera).

Parasitic on cockroaches.

Family ICHNEUMONIDÆ.

In 1872 the Entomological Society published a 'Catalogue of British Hymenoptera; Chrysididæ, Ichneumonidæ, Braconidæ, and Evaniidæ'—by the Rev. T. A. Marshall, M.A., F.L.S., (price 2/-), which in the absence of any monograph or descriptive work, will stand as the basis for the investigation of these groups and as a guide to their literature, which is unfortunately difficult and much scattered. In this catalogue are enumerated 1186 species, distributed among 136 genera and the 6 subfamilies Ichneumonides, Cryptides, Agriotypides, Ophionides, Tryphonides, and Pimplides.

The foundation of the literature of this group is Gravenhorst's 'Ichneumonologia Europæa,' 3 vols. (1829). Superstructures have been raised upon this classical work by Wesmael, by Taschenberg, who revised the Gravenhorstian types, by Ratzeburg ('Die Ichneumonen der Först-Insecten,' 1844–52), by Desvignes ('Catalogue of British Ichneumonidæ' in the British Museum, 1856, price 1/9), and others. The Swedish monographs by Holmgren are numerous and indispensable to the British student. The principal are:—his Ichneumonologia Suecica, 2 vols., 1864 and 1871, which is of primary importance for Ichneumon proper; Monographia Ophionidum Sueciæ, 1862; Ophionidslägtet Anomalon, 1857; Om de Skandinav. arterna af Ophionidslägtet Campoplex, 1872; Monographia Tryphonidum Sueciæ, 1856;

Dispositio methodica Exochorum Scandinaviæ, 1874; Dispositio methodica Mesoleiorum Scandinaviæ, 1873; and Monographia Pimplariarum Sueciæ, 1860. A monograph of the genus *Pezomachus* was published by Förster in 1851, and one of *Campoplex* in 1868 by the same author. The Rev. T. A. Marshall published a very useful article in the Ent. Ann. for 1874, pp. 114 to 146, in which at p. 123 he gave a table of Ichneumonidæ and Braconidæ and the lepidopterous and other insects on which they were parasitic. Snellen van Vollenhoven is at present publishing 'Pinakographia, Illustrations of more than one thousand North-West-European Ichneumonidæ sensu Linnæano,' in Dutch and English, with very excellent coloured plates, being a continuation of his 'Esquisses hyménoptérologiques, 1868–73. These works include also *Braconidæ*, *Oxyura*, and *Chalcididæ*. This work of Vollenhoven's ought to be in the library of every society in the Union, containing, as it will eventually do, admirable figures of a large proportion of the British species.

This is the place for reminding the lepidopterists how very greatly they can assist in the study and collection of this and other parasitic groups by the simple process of preserving and boxing the species they unwillingly breed, making notes upon their habits, and afterwards placing them for study and determination in the hands of entomologists who make the group their speciality. But it will be well to remember the importance of setting the insects so as to facilitate their examination. Marshall says (Ent. Ann. 1874, p. 128) that unless small Ichneumonidæ "receive the best attention in the way of setting, they are useless "as specimens. Any small winged Hymenopteron, if left to itself, "is sure to dry with the wings doubled up, or concealing the "characters of the abdomen, &c., in some way that renders its "identification or description impossible. Much has been said "against carding specimens intended for examination, but the "objections apply less to parasitic Hymenoptera than to most "other kinds of insects. The parts of the mouth are of only "secondary value, and the leading characters are nearly always "taken from the upper surface. Without knowing what others "may be able to do, I can say for myself that I rarely succeed in

"naming small obscure specimens unless neatly displayed upon "cards. As to running pins through the thorax or scutellum, "obliterating the most characteristic parts of the body, it is "generally throwing away all chance of identification. When a "small insect of this kind is carded, the legs should be stretched "sufficiently to allow a side glance at the coxæ, which are often "important, and if the head is prevented from resting forehead "downwards on the card, so that the face can be seen, the "maximum of convenience will be attained." Mr. Bridgman (Ent. Feb. 1878, xi. 34) in speaking of carding small species, recommends that a small hole be cut in the card, over which should be placed the head, in order to allow of the inspection of the mouth and antennæ beneath, which are important characteristic points. Very minute species are best preserved by the method adopted by Haliday and Walker: the contents of the collecting-boxes being shaken into a vessel of hot water, by which means the wings are naturally expanded. They are taken out by inserting a card under them, and the legs and wings are arranged as required with a camel-hair brush : then left till dry, when the specimens can be removed with a penknife, and gummed upon the points of stiff card braces. Some of the species of *Pezomachus*, of which the females are apterous and resemble small ants, may be bred from spiders' nests.

I am indebted to the kindness of the Rev. T. A. Marshall, M.A., F.L.S., of St. Mary's Rectory, Antigua, who formerly resided for a year or two at Lastingham, near Pickering, Yorkshire, for a list of Ichneumonidæ and Braconidæ, in which he has marked all the species which he knows certainly to have been taken in Yorkshire. These species are recorded for "Yorkshire" in the catalogue given below, and the presumption as to exact locality will be that they occurred at or near Lastingham.

I am also indebted to Mr. S. D. Bairstow of Huddersfield for information and assistance. He is taking up the study of the Ichneumonidæ (taking the word in the Linnean sense) and will write the future reports to the Section on that group. He will be glad of all the assistance that members will give him, and to

receive the ichneumons (in any stage) which Yorkshire lepidopterists breed.

The nomenclature of the following species is according to Marshall's Catalogue.

ICHNEUMONIDES.

Ichneumon bilineatus, *Gmel.*
I. trilineatus, *Gmel.*
I. vaginatorius, *L.*
I. xanthorius, *Först.*
I. confusorius, *Gr.*
I. luctatorius, *L.*
I. latrator, *Fab.*
I. quadrialbatus, *Gr.*
Amblyteles armatorius, *(Först.)*
A. amatorius, *(Müll.)*

} Rev. T. A. Marshall's "Yorkshire" List.

Trogus lutorius, *(Fab.)*=*Trogus Atropos.* A specimen in Mr. Robert Cook's collection, labelled *Trogus Atropos*, was bred by him from a Yorkshire example of *Acherontia Atropos.*

T. exaltatorius, *(Panz.)* Mr. S. D. Bairstow tells me that two or three years ago he bred this out of larvæ of *Smerinthus ocellatus*, from eggs laid by a female which he took at Askern Spa. A specimen bred out of the same insect, by Mr. George C. Dennis of York, had the thighs of the legs very much lighter in color than in Mr. Bairstow's specimen.

Perhaps only a var. of *T. lutorius* L. (P. Snellen van Vollenhoven). If a distinct species, would appear to be new to Britain, as the name is not in Marshall's Catalogue.

Dicælotus pumilus, *(Gr.)*
D. pusillator, *(Gr.)*
Phæogenes semivulpinus, *(Gr.)*
P. planifrons, *Wesm.*
P. stimulator, *(Gr.)*
P. ischiomelinus, *(Gr.)*

} Rev. T. A. Marshall's "Yorkshire" List.

CRYPTIDES.

Stilpnus gagates, *Gr.*

Phygadeuon variabilis, *Gr.*
P. fumator, *Gr.*
P. brevis, *Gr.*
P. semipolitus, *Tasch.*
P. graminicola, *Gr.*
Hemiteles furcatus, *Tasch.*
H. micator, *Gr.*
H. necator, *Gr.*
H. similis, *Gr.*
H. tristator, *Gr.*
H. æstivalis, *Gr.*
H. areator, *(Pz.)*
Hemimachus rufocinctus, *(Gr.)*

Rev. T. A. Marshall's "Yorkshire" List.

OPHIONIDES.

Ophion obscurus, *Fab.*
Campoplex mixtus, *Gr.*
Exolytus lævigatus, *(Gr.)*
Porizon hostilis, *Gr.*
P. harpurus, *(Schr.)*

TRYPHONIDES.

Mesoleptus typhæ, *Gr.*

Euryproctus Waltoni, *(Curt.)* = *Mesoleptus Waltoni*, Curt. The three specimens from which Curtis described the species in 1837 were "taken by the river Nidd at Knaresbro' in June, and also in the neighbourhood of Settle." (Curtis, B.E. xiv. 644).

E. geniculosus, *(Gr.)*
Perilissus filicornis, *(Gr.)*
Mesoleius aulicus, *(Gr.)*
M. armillatorius, *(Gr.)*
Cteniscus lituratorius, *(L.)*

Rev. T. A. Marshall's "Yorkshire" List.

Sphecophaga vesparum, *(Curtis)* = *Anomalon vesparum*, Curtis. Mr. F. Smith records (B.Foss.Hym. 1858, p. 218) that he bred five specimens from a Yorkshire nest of *Vespa rufa*.

Exochus mansuetor, *Gr.* } Rev. T. A. Marshall's
Bassus lætatorius, *(Fab.)* } "Yorkshire" List.

Metopius dentatus, *(Fab.)*=*Peltastes pini*, Curtis. Recorded in 1831 for Halifax (A. H. Davis in Loudon's Mag. N.H. 1832, v. 245). One bred from *Bombyx callunæ* by Mr. John T. Calvert of Keighley, and given to me alive May 13, 1873 (Roebuck). Bred from Rombald's Moor specimens of *B. callunæ* by Mr. Alfred Denny! Huddersfield: (Bairstow, James Varley). Halifax: (Wm. Cash).

PIMPLIDES.

Pimpla instigator, *(Fab.)*
P. turionellæ, *(L.)*
P. scanica, *(Vill.)*
Ischnoceros rusticus, *(Fourc.)*
Phytodiaetus vetulus, *(Gr.)*
} Rev. T. A. Marshall's "Yorkshire" List.

Family BRACONIDÆ.

British species 439, distributed into 125 genera, as enumerated by the Rev. T. A. Marshall in his Catalogue, published in 1872. Like that of the allied groups, the literature is much scattered; the principal authorities being Förster (for the genera his 'Synopsis d. Familien und Gattungen d. Braconen,' Bonn, 1863); Nees ab Esenbeck ('Hymenopterorum Ichneumonibus affinium monographiæ,' 2 vols., 1834); Wesmael ('Monographie des Braconides de Belgique,' 1835–7; and other works); Ratzeburg (Die Ichneumonen d. Förstinsekten, 1844–52); Haliday; Ruthe; Bouché; Curtis, &c. The Rev. T. A. Marshall gives a useful article in Ent. Ann. 1874, referred to in connection with Ichneumonidæ: a table of Braconidæ and their hosts is given at p. 125; and at p. 144 is a list of 8 British species worthy of special mention.

The remarks on collection and preservation made under the head of Ichneumonidæ apply equally to the present family. For the following names of Yorkshire species I am indebted to the Rev. T. A. Marshall (see remarks under "Ichneumonidæ," p. 36).

BRACONIDES.

Bracon anthracinus, *Nees.*

RHOGADIDES.

Clinocentrus exsertor, *(Nees).*
Rhogas bicolor, *(Spin.)*
R. circumscriptus, *(Nees).*

RHYSSALIDES.

Colastes braconius, *Hal.*

SIGALPHIDES.

Sigalphus caudatus, *Nees.*

MICROGASTERIDES.

Apanteles falcatus, *(Nees).*
A. lacteus, *(Nees).*
A. glomeratus, *(L.)*

Rev. T. A. Marshall's "Yorkshire" List.

This is the very abundant ichneumon which infests *Pieris brassicæ*, and whose yellow cocoons are so well known clustered round its dead or dying caterpillar. Abundant about Leeds, Harrogate, &c. (Roebuck). Huddersfield, &c. (Bairstow).

Microplitis alvearia, *(Fab.)* Specimens were bred by Mr. W. Buckler from specimens of *Dasypolia Templi* which were sent him by Mr. James Varley, from Yorkshire (E. M. M. April 1868, iv. 252 and 253): I presume from the wellknown locality near Denby Dale.

PERILITIDES.

Protelus chrysophthalmus, *(Spin.)*
Perilitus micropterus, *Hal.*
P. ictericus, *(Nees.)*
P. cincteilus, *(Nees.)*

MACROCENTRIDES.

Zele chlorophthalmus, *(Nees.)*
Macrocentrus marginator, *(Nees.)*

ALYSIIDES.

Aphæreta cephalotes, *(Hal.)*

Rev. T. A. Marshall's "Yorkshire" List.

Diaspasta contracta, *(Hal.)*
Alysia manducator, *(Pz.)*
Phænocarpa ruficeps, *(Nees.)*

DACNUSIDES.

Chænon anceps, *(Hal.)*
Cœlinius niger, *(Nees.)*
Rhizarcha areolaris, *(Nees.)*
Dacnusa talaris, *Hal.*

} Rev. T. A. Marshall's "Yorkshire" List.

Tribe OXYURA.

The Rev. T. A. Marshall, the compiler of the Ent. Society's 'Catalogue of British Hymenoptera: Oxyura,' (1873) enumerates therein 83 genera and 373 species, included in 11 families: *Proctotrypidæ, Ceraphronidæ, Bethylidæ, Dryinidæ, Embolimidæ, Heloridæ, Belytidæ, Diapriidæ, Scelionidæ, Platygastridæ,* and *Mymaridæ.* The vast majority of these insects are minute in size and parasitic in habits. The literature, as usual, much scattered. The chief authorities are Förster (Hym. Studien, 2 Hefte, 1850–6), Curtis, Haliday, Nees ab Esenbeck (Hym. Ichn. affin. monog. 2 vols., 1834), Ratzeburg (Die Ichn. d. Förstins.), Thomson (Öfversigt), Boheman, Dalman, Herrich-Schäffer, Westwood, Walker (Ent. Mag.), Marshall (E.M.M. 'on some British Diapriidæ,' Feb., 1868, iv. 201) &c. See mention of 10 species in Marshall's paper in the Ent. Ann. 1874, pp. 131 and 145.

Collection and preservation of these atoms: see under "Ichneumonidæ," p. 36.

No Yorkshire species as yet placed on record.

CHALCIDIDÆ.

The literature of this group is in an extremely unsatisfactory state, there not even being, as in allied groups, a synonymic or any other catalogue of British species of recent date. The group has been studied by F. Walker (Monographia Chalciditum, 2 vols. 1839: Linnean Transactions, xx. 153; various B.M.

publications 1846 and 1848; Notes in the Entom. 1871, &c.); Westwood; Haliday and others. The 4th vol. of Thomson's Hymenoptera Scandinaviæ is devoted to the Linnean genus *Pteromalus*. In his classical 'Introduction to the Modern Classification of Insects,' published 1840, Prof. Westwood estimates the number of British species as follows:—*Chalcides*, 8; *Eurytomides*, 54; *Spalangiides*, 14; *Torymides*, 73; *Miscogasterides*, 96; *Ormocerides*, 33; *Pteromalides*, 376; *Cleonymides*, 4; *Encyrtides*, 155; *Eulophides*, 224;—altogether 1037 British species; and he thinks that there are probably 1500. These insects are exceedingly minute, of parasitic habits, and very obscure.

Their collection and preservation is referred to under the heading "Ichneumonidæ," p. 36.

Our Yorkshire species have not as yet been examined sufficiently by any entomologist for us to attempt a list. Mr. Inchbald sent a gall-maker to Mr. E. A. Fitch, viz.:—

Eurytoma hyalipennis? Galls on Ammophila arundinacea, near Saltburn.

Family CHRYSIDIDÆ.

A small group of very brilliantly metallic-coloured insects, which have received such English names as Golden-wasps, Ruby-flies, &c. Conspicuous by their refulgent and resplendent colours. In 1862 Mr. Frederick Smith wrote a Monograph of the British species, which will be found in the Entomologist's Annual for 1862, pp. 82–104. Mr. Smith there enumerated 6 genera and 22 species, and these numbers remain the same in the Rev. T. A. Marshall's Catalogue, published in 1872. In addition to the 5 species in the following list, which are all we are as yet able to show for our county, I have seen an old record (circâ 1835?) of *Hedychrum regium* (?=*H. lucidulum*, Fab.) at "Rufforth Wood."

Hedychrum roseum, *(Rossi).* One specimen near Wakefield (Smith, Mon. Chrys. in Ent. Ann. 1862, p. 101).

Chrysis ignita, *L.* Smith bred numerous specimens from a nest of *Vespa rufa* which he obtained in 1852 in Yorkshire (near Wakefield). (Zool. 1852, x. 3702; B.F.H. 1858, p. 219; Ent. Ann. 1861, p. 80). I have found this abundantly at Knaresbro'! Pannal! Harewood! East Rigton near Wetherby! Thorner! Meanwood! and Moor Allerton, near Leeds!

C. Ruddii, *Shuck.* Yorkshire (Smith, List B. Hym. Acul. in B.M. 1851, p. 108).

C. viridula, *L.* Abundant at Pannal, flying about earth-banks in 1870!

C. Austriaca, *Fab.* Mr. F. Smith has taken it freely in Yorkshire (Mon. Chrys., Ent. Ann. 1862, p. 92).

ACULEATA.

The Hymenoptera have usually been divided into two great divisions: I. The **Terebrantia**, comprising all the preceding groups; and II. The **Aculeata**, including the four succeeding ones.

The **Aculeata** include all the Social species—Ants, Wasps, and Bees—as well as a large number of solitary species. In July 1852 Mr. F. Smith collected aculeata round Wakefield, and as the result of his investigations gave a complete list of the species he met with (5 saw-flies and 69 aculeata), in the Zoologist for the same year (x. 3625–6). Therein he stated that the first impression left on his mind as constituting a marked difference between Yorkshire and the London district, was the immense abundance of the social Hymenoptera as compared with the solitary species, and also as compared with their occurrence near London, or, in fact, in any district which he had investigated in the South of England. On the borders of the woods the nests of wasps were found in astonishing numbers, principally those of *Vespa vulgaris*; those of *V. rufa* were not by any means uncommon; and those of *V. Norvegica* were also occasionally to be met with, as well as of *V. arborea*. Several of the species of

humble-bees, particularly *Bombus lucorum*, abounded in immense profusion, while as to the ants, Mr. Smith's remarks will be found below (see *Myrmica scabrinodis*).

My experience corroborates Mr. Smith's view of the relative abundance of social and solitary aculeata, especially bees: often have I wondered that I have not seen the air darkened with the immense clouds of *Anthophora* noticed in the south, and that I have so seldom met with examples of the so-called common species of the genera *Osmia*, *Megachile*, *Anthidium*, *Chelostoma*, &c., while on the other hand Humble-Bees *(Bombus)*, Wasps *(Vespa)*, and Ants *(Formica* and *Myrmica)* abound in every part of the county. Tables of geographical distribution show that the various genera of solitary hymenoptera are of southern range, and abound most in species and individuals in warm climates, while on the other hand the Humble-Bees are decidedly northern in their range, penetrating far into the Arctic Regions and only appearing in the Tropics in diminished numbers. Why this should be so has yet to be ascertained, but meanwhile the fact remains that our county is, as regards its hymenoptera as well as in geographical position, decidedly of northern tendency.

Tribe HETEROGYNA—Ants.

The British Ants are described in Smith's 'Catalogue of British Fossorial Hymenoptera, Formicidæ, and Vespidæ, in the collection of the British Museum,' 1858 (6/-), to the number of 8 genera and 33 species, distributed among the families *Formicidæ*, *Poneridæ*, *Myrmicidæ*, and *Mutillidæ*.

A paper by Mr. Smith, published in the E.M.M. for July 1865 (ii. 28–30), will be found very useful and suggestive. The number of British species given in the most recent enumeration (F. Smith's 'Catalogue of British Hymenoptera; Aculeata,' 1871, published by the Ent. Soc.) is 35 species in 12 genera and the 4 families before mentioned: increased to 36 species by the discovery of a new form, *Ponera tarda*, Charsley (E.M.M. 1877, xiv. 162). For comparison, Bold's Catalogue for Northumberland and Durham includes 13 species.

An interesting feature in the economy of ants, as Mr. Smith has lately written me, is that "in the nests of several species of ants are to be found some of the rarer species of Coleoptera, belonging principally to the Staphylinidæ; no less than seventeen species of beetles have been found in the nest of *Formica rufa*, five in that of *F. fusca*, and fifteen in that of *F. fuliginosa;* some of these are supposed to be in some way beneficial to the communities in which they are found; this is usually during the breeding season, after which they are rarely found."

In the Entom., March 1869, iv. 232, Mr. Newman gives the name of *Myrmica domestica* to some insects sent him by Mr. Isaac Sharp of Middlesbro', who states that a pot of preserved ginger brought him some two years before by a sea captain from the East, on accidentally breaking proved to contain these insects. No doubt these are the same insects which inhabit bake-houses in Leeds, and which when examined will no doubt add to our list the name of *Diplorhoptrum domesticum*, Shuck., the House Ant. They are very minute in size and are not originally indigenous to this country, the first specimens having been imported some fifty years ago from Rio de Janeiro, although its subsequent dispersal in this country has been very rapid.

Formica rufa, *L.* The Wood Ant. Recorded in 1836 as occurring in Kirkstall Woods near Leeds (Henry Denny in Curtis's Brit. Ent. 1836, vol. viii., erratum to plate 582). Wakefield district in July 1852 (F. Smith, Zool. x. 3626). Recorded in 1864 for Brockerdale by the Wakefield Naturalists (J. Hepworth in the 'Naturalist' for Oct. 15, 1864, i. 188). Nests plentiful near Scarborough (T. Wilkinson, E. M. M. June 1865, ii. 14). Grass Low Wood, near Grassington; large colonies existing here are mentioned in a local guide book (Harker's Rambles in Upper Wharfedale, 1869, p. 44). In 1872 I verified this occurrence and found that the ants and their hills were familiar objects to the inhabitants of the neighbourhood, who remember them for thirty years back. Abundant in Sprotborough Woods near Doncaster! on Wharncliffe Crags near Sheffield! and in the Woods at Fryston near Pontefract! No doubt introduced in all

these places, as their cocoons are greatly in demand for the feeding of game.

F. nigra, *L.*
F. fuliginosa, *Latr.*
F. flava, *De Geer* } Wakefield district in July 1852 (F. Smith, Zool. x. 3626).

Myrmica ruginodis, *Nyl.* Wakefield in July 1852 (F. Smith, Zool. x. 3626). Also see under next species.

M. scabrinodis, *Nyl.* Speaking of the immense preponderance of social over solitary hymenoptera in Yorkshire as compared with the Southern counties, Mr. Fred. Smith (Zool. 1852, x. 3625–6) states as the result of his collecting near Wakefield in July 1852, that "In stony fields on hill-sides I found colonies of *Myrmica rubra* in such immense numbers that were I to say they occurred under every stone, as applied to fields in general, I speak strictly according to truth." And again (B. Foss. Hym. 1858, p. 3) he says:—"On the hilly fields in Yorkshire I observed a colony of this, or the preceding species [*M. ruginodis*], under almost every stone."

M. lævinodis, *Nyl.* "Taken near Woolley. F. Smith" (in litt.) Wakefield district in July 1852 (F. Smith, Zool. x. 3626).

Stenamma Westwoodii, *Steph.* Several specimens at Scarborough in 1871 by R. Lawson (Smith, Ent. Ann. 1872, p. 98). Resides in the nests of *Formica rufa* (F. Smith in litt.)

Myrmosa melanocephala, *(Fab.)* Near Wakefield in July 1852 (Smith, Zool. x. 3626 and B.F.H., 1858, p. 44).

Tribe FOSSORES.

These insects are fully monographed by Shuckard ('Essay on the Indigenous Fossorial Hymenoptera,' 1837) and F. Smith ('Catalogue of British Fossorial Hymenoptera, Formicidæ and Vespidæ in the Collection of the British Museum,' 1858).

The number of British species in 1871 was 119, distributed in 34 genera and the families *Scoliidæ*, *Sapygidæ*, *Pompilidæ*, *Sphegidæ*, *Larridæ*, *Nyssonidæ*, *Crabronidæ*, and *Philanthidæ*, as enumerated in Mr. Smith's Catalogue of British Aculeate

Hymenoptera. Since the issue of that list 2 species, *Pompilus approximatus*, Smith, and *Crabro ambiguus*, Dahlb., have been added to the fauna.

These insects may be collected and preserved in much the same way as the bees, but being of more active habits require a sharper eye and quicker hand for their capture.

Bold's Northumberland and Durham Catalogue includes 36 species, against which the 27 species enumerated below makes but a poor show.

Sapyga quinquepunctata, *(Fab.)* = *S. quadriguttata*, (Fab.) Wakefield in July 1852 (F. Smith, Zool. x. 3626). "Yorkshire" (F. Smith, B.F.H. 1858, p. 51).

S. clavicornis, *(L.)* Wakefield district, July 1852 (F. Smith, Zool. 1852, x. 3626). Near Wakefield, captured as late as the 18th July. (Smith, B.F.H. 1858, p. 52).

Pompilus fuscus, *(L.)* } Wakefield district in July 1852
P. gibbus, *(L.)* } (F. Smith, Zool. x. 3626).

P. spissus, *Schiodte.* "Yorkshire" (Smith, B.F.H. 1858, p. 58). Most likely this is the new species, "allied to *P. gibbus*, but very distinct," mentioned by F. Smith as taken near Wakefield in July 1852 (Zool. x. 3626).

Priocnemis exaltatus, *Fab.* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

Agenia variegata, (*L.*) Several (seven ♀, one ♂) taken in July 1852 near Wakefield by Mr. Smith ('Athenæum,' Aug. 14, 1852, p. 875 : F. Smith, Zool. 1852, x. 3626 : B.F.H. 1858, p. 73 : and Entom. Sep. 1867, iii. 322).

Ceropales maculata, *(Fab.)* Near Wakefield (Smith B.F.H. 1858, p. 77).

Tachytes pompiliformis, *(Panz.)* Has "occurred at Yarm" (Smith, B.F.H. 1858, p. 89).

Nysson spinosus, *(Fab.)* Near Wakefield, July 1852 (F. Smith, Zool. x. 3626). Has been taken in Yorkshire in July (Smith, B.F.H. 1858, p. 98).

Gorytes mystaceus, *(L.)* } Near Wakefield, July 1852
Trypoxylon figulus, *(L.)* } (F. Smith, Zool. x. 3626.)

Crabro dimidiatus, *Fab.* Mr. Smith took it in abundance near Wakefield in July 1852 (Zool. x. 3626 : B.F.H. 1858, p. 126).

C. luteipalpis, *(St. Farg.)*=*C. elongatulus*, Lind. Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

C. leucostoma, *(L.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

C. Wesmaeli, *Lind.* Captured in Yorkshire in July by Mr. Smith (B.F.H. 1858, p. 136).

C. capitosus, *Shuck.* "Yorkshire." (Smith B. F. H. 1858, p. 137).

C. obliquus, *Shuck.*
C. cribrarius, *(L.)*
C. patellatus, *(Pz.)*
C. vagus, *(L.)*
} Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

C. Lindenius, *Shuck.* A specimen bred in Sep. 1859 from a piece of willow-wood sent from York: the burrows were stored with various Diptera (Peter Inchbald, Ent. Weekly Int., Sept. 17, 1859, vi. 199).

C. albilabris, *Fab.* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Smith has "taken both sexes in Yorkshire during July." (B. F. H. 1858, p. 159).

Diodontus minutus, *(Fab.)*
Passalæcus insignis, *(Lind.)*
Pemphredon lugubris, *(Fab.)*
} Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

Cemonus unicolor, *(Lind.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Bred in July 1870 from dead bramble-sticks stored with Aphides, found at Lofthouse by Mr. George Roberts: the insects were named by Mr. Frederick Smith (Roberts' Rural Notes for 1870, reprinted from the 'Yorkshire Post' in the 'Zoologist,' August 1871, S.S. vi. 2710).

Mimesa equestris, *(Lind.)* "Has occurred in Yorkshire" (Smith B. F. H. 1858, p. 183).

TRANSACTIONS

OF THE

YORKSHIRE NATURALISTS' UNION.

Series E:

BOTANY.

The **Botanical Section** of the Yorkshire Naturalists' Union was founded by a vote of the Council of the Union on Dec. 2, 1876, and at the same time Mr. C. P. Hobkirk, of Huddersfield, and Dr. Parsons, of Goole, were appointed as the nucleus of the committee with power to add to their number. The Section held its first meeting at Pontefract on April 2, 1877, when Mr. Joseph Wainwright, F.L.S., of Wakefield, was elected president, and Dr. Parsons secretary, with a Committee consisting of the following gentlemen :—

REV. W. FOWLER, M.A., *Liversedge.*
R. EARNSHAW, *Ovenden.*
J. FRENCH, *Huddersfield.*
C. P. HOBKIRK, *Huddersfield.*
F. ARNOLD LEES, F.L.S., *Leeds.*
H. R. MOISER, F.G.S., *York.*
E. TAYLOR, *Huddersfield.*
G. WEBSTER, *York.*

THE YORKSHIRE NATURALISTS' UNION:

BOTANICAL SECTION.

The first Annual Meeting was held at Wakefield, on Oct. 6, 1877, when the report printed at page 3 was read and adopted. The officers elected for 1878 were:—

PRESIDENT:

REV. W. FOWLER, M.A., *Liversedge.*

SECRETARY:

H. F. PARSONS, M.D., F.G.S., *Goole.*

REPORT

OF THE

BOTANICAL SECTION:

1877.

In the following report the Committee of the Section have not attempted to embody more than the records of the plants observed at the excursions of the Union during the year. To obtain lists of local plants from district societies and private individuals, and to attempt to compile from them a catalogue of the Flora of the West Riding or County they have felt to be a task, not only beyond their powers, but also quite superfluous, inasmuch as a work on the flora of Mid-West and South-West Yorkshire is about to issue from the pen of Mr. F. Arnold Lees, F.L.S., while the two vice-counties of North-West and North-East Yorkshire have already been treated most extensively on a similar plan by Mr. J. G. Baker, F.R.S.

Of the 1680 flowering plants and vascular cryptogams enumerated in the 7th edition of the London Catalogue, 502 species have been observed at our meetings. The numbers recorded at the several meetings have been as follows :—

Pontefract, April 2nd	... ...	40 species.
Wetherby, May 21st	...	133 „
Nostell, June 16th	... ...	146 „
Shipley, July 14th	... ...	260 „
Goole, August 6th	... ...	267 „
Copley, September 8th	...	167 „

Many species, of course, have been recorded at several meetings.

The Pontefract meeting was held too early in the year for many flowering plants to be seen; those that were observed were mostly the very common and generally distributed species, though one or two, as *Viola hirta* and *Inula Conyza*, belonged to the type of plants loving a dry calcareous soil. About 20 mosses and a few other cryptogamia were met with, all of common kinds.

At Wetherby and its neighbourhood a characteristic calcareous flora was met with, although, owing to the extreme backwardness of the spring, fewer plants were found than would have been the case in a more genial season. The great size and age attained by timber trees in that neighbourhood, as for instance the Cowthorpe oak, attracted attention. Mosses were plentiful and other cryptogamia fairly so. *Mnium punctatum* and *serratum* fruited profusely among damp sand by the River Nidd.

At the Nostell excursion the plants met with, although somewhat more numerous than at Wetherby, owing to the season being more advanced, were mostly such as are generally distributed. A few bog plants were found at Cold Hiendley, and Sharleston Common yielded some sand-loving species, while the limestone flora was represented only by *Anthyllis vulneraria* on the railway embankment, possibly introduced by human agency. About 20 mosses were found on Sharleston Common, including one or two rare species, but mostly stunted and sterile.

At the Shipley meeting a great variety of plants was met with, owing partly to the number of different routes taken by different parties. On Rombald's Moor species of a northern and alpine type were met with, as *Vaccinium Vitis-idæa*, *Trientalis europæa* (very scarce but in flower), *Empetrum nigrum*, *Racomitrium aciculare* and *fasciculare*, *Parmelia omphalodes* and *Evernia furfuracea*. Other species affecting hilly countries of less elevation were *Geum rivale*, *Myrrhis odorata*, *Crepis paludosa*, &c. Mosses, hepaticæ, lichens, and algæ were met with in profusion in Shipley Glen and elsewhere in the neigbourhood of Rombald's Moor.

At Goole a larger number of flowering plants was observed

than at either of the other meetings, and many of them were local or rare species. On the banks of the tidal Ouse are found several maritime or rather salt-marsh plants, as *Aster Tripolium* and *Glaux maritima;* the plants of sandy and rocky sea shores are however absent, as also the saline Chenopodiaceæ. The flora of Goole Moor, or Thorne Waste, resembles that of the high western moors, but differs in the absence of *Erica cinerea* and the two *Vaccinia—V. myrtillus* and *V. Vitis-idæa*, and also in the great local abundance of *Andromeda polifolia.* Several other very local species are met with there. *Empetrum nigrum* is found on Goole Moor, but only on the margins of the ponds frequented by wild fowl, by whose droppings the seeds may perhaps have been conveyed thither. The rarity of Gramineæ and of plants with yellow flowers is remarkable, as is also the entire change in the flora effected by the process of "warping." The wet sandy common called Rawcliffe Rabbit Hills yielded plants peculiar to such places, *e.g.*, *Drosera intermedia*, *Hypericum elodes*, *Gentiana Pneumonanthe* and *Pilularia globulifera.* It is probably somewhat similar to what Goole Moor was before the accumulation of peat took place. The number of cryptogams observed at the Goole meeting was not large, but certain kinds of mosses, as *Sphagnum* and *Polytrichum*, were extremely abundant and luxuriant on the Moor.

At Norland Moor the flora resembled that at Rombald's Moor, but *Empetrum nigrum* was absent. A diminution was observed in the total number of species seen, due in part to the season being nearly past. Hepaticæ were unusually plentiful, mosses and fungi moderately so, and lichens very scarce.

In South-West Yorkshire, as defined by Mr. H. C. Watson, *i.e.*, that part of the West Riding south of the Aire and the Leeds and Liverpool Canal, 18 species have been observed not included in "Topographical Botany" (published in 1873) as inhabiting that vice-county, viz.:—

Ranunculus hirsutus, *Curtis*	...	Goole
Drosera intermedia, *Hayne*	...	Goole Moor and Rawcliffe

Spergularia neglecta, *Syme*, var. media, *Fries*.	Goole
Hypericum elodes, *L.*	Rawcliffe
Apium graveolens, *L.*	Goole
Sium latifolium, *L.*	Goole
Centaurea Calcitrapa, *L.*	Brighouse (colonist [or casual)
Atriplex erecta, *Huds.*	Goole
Atriplex deltoidea, *Bab.*	Copley
Orchis incarnata, *L.*	Goole
Juncus Gerardi, *Lois.*	Goole
Scirpus Tabernæmontani, *Gmel.*... ...	Goole
Scirpus maritimus, *L.*	Goole
Carex divisa, *Huds.*	Goole
Carex stricta, *Good.*	Goole Moor
Sclerochloa maritima, *Lindl.*	Goole
Lepturus filiformis, *Trin.*	Goole (casual)
Pilularia globulifera, *L.*	Rawcliffe

Some of these species however are given in old floras as observed by botanists of a past generation, and these observavations are therefore properly confirmatory records rather than real discoveries, while others have been recorded for South-West Yorkshire since 1873 in the reports of the Botanical Locality Record Club.

For Mid-West Yorkshire, *i.e.*, that part of the West Riding north of the Aire, no new records have been made, but the occurrence of *Trientalis europæa*, marked with a query in "Topographical Botany," has been verified.

The Committee hope that in any scheme for the detailed investigation of the flora of the county, the "vice-counties" of Mr. Watson will be recognized, being, as they are, well known and generally received among botanists, and marked by boundaries easy to be distinguished.

In Cryptogamic Botany the workers are less numerous than the committee could wish. In this field far more remains to be reaped than in that of the flowering plants, yet the labourers are few indeed. The distribution in space—horizontal and vertical —of the perennial flowerless plants, mosses, liverworts, and

lichens, if well worked out, would probably yield results of great value to geographical botany.

Of **Mosses** a fair number has been obtained at each of our excursions; the total number of species observed is 84 out of the 568 known to be British. Two of the species, *Didymodon sinuosus*, Wils., found at Collingham, and *Didymodon luridus*, Hornsch, found at Sharleston, had not before been found in Yorkshire.

Hepaticæ. The plants of this order prefer the hilly and rainy western parts of our island, and as might be expected, a larger number of them were found at Shipley and Copley than at any other of our meetings. Thirteen out of 136 British species have been found, all of them such as are common in places where the conditions favourable to their existence are met with.

Lichens. The smoke-blackened tree-trunks and stones of the manufacturing districts of the West Riding are not favourable to the growth of these plants. Only 22 out of the 568 British species enumerated by Crombie have been met with. Of these the common *Peltigera canina* is the only one not recorded for Yorkshire in Leighton's Lichen Flora, and this species must no doubt have been frequently observed before.

Algæ. The fresh-water Algæ are very generally neglected by our field botanists, doubtless in great part owing to there being no recent or accessible hand-book on the order. Interesting however as the Confervoid Algæ are to the morphological and physiological botanist, they promise less aid to geographical botany than do the foregoing orders, since many of them are ubiquitous in their distribution and their occurrence is determined rather by the presence of a suitable medium than by geographical situation. Thirteen species have been found at our meetings, and as no systematic list of Yorkshire Algæ has ever been published it will be worth while recording their names, although most of them are common species.

Lemania fluviatilis, *Ag.*	Shipley Glen
Draparnaldia plumosa, *Ag.* ...	Wetherby
Cladophora glomerata, *L...* ...	Shipley Glen

Conferva bombycina, *Ag.* ...	Pontefract and Norland Moor
Conferva capillaris, *Ag.* ...	Hawksworth Springs
Spirogyra quinina, *Ag.* ...	Sharleston
Tyndaridea lutescens, *Hass.* ...	Sharleston
Prasiola crispa, *Lightf.* ...	Rombald's Moor and Copley
Closterium Ehrenbergii, *Menegh.*	Hawksworth Springs
Cosmarium margaritiferum, *Turp.*	Hawksworth Springs
Fragilaria virescens, *Ralfs* ...	Hawksworth Springs
Diatoma vulgare, *Bory* ...	Hawksworth Springs
Himantidium undulatum, *Smith*	Hawksworth Springs

Fungi present a wide field to the botanist, and the West Riding seems more favourable to them than to some of the other cryptogamic orders, but only 39 species out of the 2809 found in Britain have been recorded at our meetings. The smallness of this proportion is due partly to the fact that the summer, when our excursions are held, is not the most favourable time of the year for fungi; partly to the perishable nature of the larger fleshy kinds, which if not made out at the time of gathering can scarcely be determined afterwards; and partly to the inconspicuousness of the minute kinds, which escape notice unless specially looked for. Most of the fungi were of common kinds, but among them the following may be mentioned :—

Agaricus (Entoloma) clypeatus, *L.*	Wetherby
Ag. (Tricholoma) rutilans, *Schæff.*	Norland Moor
Agaricus (Hebeloma) rimosus, *Bull*	Norland Moor
Agaricus (Galera) tener, *Schæff.*	Sharleston
Reticularia umbrina, *Fries* ...	Cowthorpe and Sharleston
Perichæna populina, *Fries* ...	Wetherby
Morchella semilibera, *D.C.* ...	Wetherby
Peziza acetabulum, *L...* ...	Wetherby
Vibrissea truncorum, *Fries* ...	Shipley

WILLIAM FOWLER, *President.*

H. FRANKLIN PARSONS, M.D., *Secretary.*

64.5

THE

TRANSACTIONS

OF THE

YORKSHIRE NATURALISTS' UNION.

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PART 2.

Issued to the Subscribers for the year 1878.

N.B.—The Subscribers for 1878 will also be entitled to receive Part 3, when issued.

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WM. DENISON ROEBUCK.

Yorkshire Hymenoptera in 1878 and second list of species.
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Report of the Botanical Section for 1878.
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The Moss Flora of the East Riding.
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1879.

Yorkshire Naturalists' Union:

1879.

President:

HY. CLIFTON SORBY, LL.D., F.R.S., Pres.G.S., &c., Sheffield.

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REV. WM. FOWLER, M.A., Liversedge.

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SECTIONS.

For the better working of the various branches of Science, five Sections have been formed, each having its own officers and committee.

The Officers of Sections will be glad to receive information from the members, as the scope of the Sections will not be simply confined to the work done at the meetings, but will embrace the investigation of the Natural History of the County in its widest sense.

B. VERTEBRATE ZOOLOGY.

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80.A24

M. bicolor, *(Jurine.)* Mr. Smith has taken it in Yorkshire (B.F.H. 1858, p. 184).

Tribe DIPLOPTERA—Wasps.

This tribe is divided into two families, the *Eumenidæ*, or solitary wasps, and the *Vespidæ*, or social wasps. Of the former were enumerated in Smith's 'Cat. Brit. Hym. Acul.,' 1871, 2 genera and 13 species (in 1876 increased to 14 by the capture of *Odynerus reniformis*, Gmel., in the South of England) and of the latter family 1 genus of 7 species.

The British species are monographed by Mr. Smith in his B.M.Cat., 1858, and the 7 social wasps well figured by Dr. Ormerod in his 'British Social Wasps,' 1868, figures of the nests being also given in the latter work. The student of wasps in general who does not restrict his investigations by geographical limits is exceptionally fortunate in having at his command the complete monographs and splendid figures of De Saussure's 'Etudes sur la Famille des Vespides,' 3 vols., 1852—58.

It will be seen by the following list that of the *Vespidæ* all the British species are recorded for our county, including the Hornet; although I believe that its range does not extend further north than the midland counties of England, all assertions to the contrary notwithstanding.

Odynerus gracilis, *Brullé* = *O. elegans*, Wesm. Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

O. spinipes, *(L.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

O. parietum, *(L.)* = *O. parietinus*, Curtis. Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

O. trimarginatus, *Zett.* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

O. Antilope, *(Panz.)* "Very abundant in Yorkshire" (Smith, B.F.H. 1858, p. 211).

Vespa Crabro, *L.* The Hornet. I have seen three

specimens in Mr. Robert Cook's collection which he states to have been taken at Bishophill, York, aobve 30 years ago, by a friend of his whose bee-hives the Hornets infested. I cannot help thinking that there is some mistake in this record, and that the Hornet cannot be admitted into the Yorkshire fauna. It is so large and conspicuous an insect that if it was a true denizen of our county the fact would be well known and attested by specimens in many collections. True, it has often been reported to me, but the production of specimens has invariably dispelled the illusion by their turning out to be large wasps. The only other Northern records I have seen are two in number: Mr. Bold admits it into his Northumberland and Durham list on what I cannot but consider very unsatisfactory grounds: and in the E. M. M. Dr. Chapman, a competent observer, records that a Hornet sailed within a foot of him at Glen Coe, in Scotland, but the specimen in this case having only been seen, not caught, it remains open to doubt whether Dr. Chapman may not after all have been mistaken, in spite of his well-known entomological attainments. Moreover the specimen being a solitary one, it is still further open to doubt, supposing the species to have been correctly identified on the wing by Dr. Chapman, whether it was not a straggler, accidentally introduced.

Vespa vulgaris, *L.* The Common Wasp.

The nests were very abundant in July 1852 on the borders of woods near Wakefield (F. Smith, Zool. x. 3625–6; also 3699 et seq. Frequent at Pannal! Leeds! Bramham! and near Grassington.

Vespa Germanica, *Fab.* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). The most abundant species that I have taken: Leeds! Barwick-in-Elmet! Harrogate! Pannal! &c.

Vespa rufa, *L.* "Yorkshire" (Smith, Ent. Ann. 1861, p. 80). The nests were not by any means uncommon near Wakefield in July 1852 (F. Smith, Zool. 1852, x. 3626). One was taken in a bank, containing about 150 wasps, all neuters with the exception of one female and about half-a-dozen recently developed males,

and kept by Mr. Smith in London for observation. This colony is the subject of a paper by him in the 'Zoologist' for the same year (x. 3699 to 3703). Abundant about Leeds! Harrogate! Pannal! &c. In 1873 a hybernating female was found on the 7th December under a log of wood in Bulcliffe Woods near Wakefield! by Mr. George Taylor: it lived in a torpid state till the beginning of February.

Vespa sylvestris, *Scop.* A nest taken on the moors near Pateley Bridge in 1864 (E. Foxton-Firby in the 'Naturalist,' Oct. 1, 1866, iii. 81).

I have taken the wasp at Pannal! and at Leeds! and a nest was brought to me taken in July 1874 on a furze bush at Bramhope.

Mr. Smith assures me that "this species not unfrequently constructs an underground nest." (letter 28 June, 1878).

Vespa arborea, *Smith.* The first known specimens were discovered in 1836 by Mr. F. Smith, building nests in fir-woods on a ridge between Leeds and Wakefield, about four miles north of the latter place. (Smith, B. F. H. 1858, p. 219 &c.: Ormerod, Brit. Soc. Wasps, 1868, p. 218). Near Wakefield in July 1852 (F. Smith, Zool. 1852, x. 3626). I have a female, which I took in a window in one of the most central streets of Leeds!

V. Norvegica, *Fab.* A nest in August 1837 at Campsall, near Doncaster (Edwin Lankester in Neville Wood's 'Naturalist' for 1837, ii. 450). A nest at Lofthouse near Wakefield, July, 1864 (George Roberts, 'Rural Notes' in 'Leeds Intelligencer' for Jan. 28, 1865). A nest near Bedale in 1865 ('Field,' June 24, 1865, p. 456). Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). A paper on the economy of a colony of *V. norvegica*, the nest of which Mr. Smith took near Wakefield in July 1852, attached to a gooseberry bush, is given by him in the 'Zoologist' of that year (x. 3699 to 3703: the colony consisted of about about a hundred females, a hundred and fifty workers, but not more than twenty males—the latter sex having left the nest during the hot weather in July, and had not returned at night, when the

nest was taken. Stated by Mr. Smith to be "not uncommon in Yorkshire" (B.F.H. 1858, p. 221).

Tribe ANTHOPHILA—Bees.

The student of this group is exceptionally favoured in being able to take for his text-book the second edition of Mr. Frederick Smith's 'Catalogue of British Bees in the collection of the British Museum,' 1876 (price 5/-).

Directions for collection aud preservation will be found in the 'Entomologist's Annual' for 1856, in 'Science Gossip' for Oct. 1875 (this paper also reprinted in Hardwicke's 'Notes on Collecting and Preserving Natural History Objects,' 1877), and in the Ent. Mo. Mag. for June and August 1875.

The number of British genera and species described in the above-mentioned monograph of Mr. Smith's was (1876):

fam. Andrenidæ...	8	genera	117	species
fam. Apidæ 18		„	94	„
altogether	26	„	211	„

The discovery in 1877 of two new species of Andrenidæ in Britain (*Halictus pauxillus*, Schenck, and *Rophites quinquespinosus*, Spin., the latter, taken again in 1878—a new genus—being the most important addition made to the British list for many years) raised these numbers to 27 genera and 213 species.

The value of this present paper is immeasurably enhanced by the fact that through the kindness of Mr. William Talbot of Wakefield and by permission of Mr. Frederick Smith, F.Z.S., of the British Museum, I am able to embody herein a very full list of the bees which occur in the immediate neighbourhood of Woolley near Wakefield. This portion of country, which will henceforth be to Yorkshire hymenopterists a classic land as the scene of Mr. Smith's chief Yorkshire researches, and which includes Woolley Edge, is on sandy soil, very suitable for the nidification of various Hymenoptera. It is moreover remarkable, as Mr. Smith points out, for the somewhat northern type of its

Hymenopterous fauna, several species occurring here which are otherwise of Scottish distribution. Mr. Smith, who is by far the best of English hymenopterists, has frequently and in various years collected in this county, more especially round about Wakefield. In 18—, he marked in Mr. Talbot's copy of his "British Bees" (1st ed., pub. 1855) all the species which are found within a few miles of Woolley. By the kindness of both gentlemen I am able to incorporate herein the names so marked. Of the 95 species mentioned below as having been found in Yorkshire 85 belong to the neighbourhood of Wakefield.

The nomenclature given is according to the 2nd edition of Smith's Catalogue, wherein he has changed several well-known names for obscure ones—the result of further and more detailed comparison of type-specimens.

ANDRENIDÆ.

Colletes marginata, *(L.)* "Yorkshire" (Smith, B.B. 1855, p. 6: and 2nd edition, 1876, p. 5).

Colletes Daviesana, *Smith.* Near Wakefield in July 1852 (F. Smith, Zool. 1852, x. 3626). Woolley (Smith MS.) "Yorkshire" (Smith, Entom. July 1867, iii. 298).

Prosopis dilatata, *(Kby.)* Woolley (Smith MS.)

P. communis, *(Nyl.)*=*P. annulatus,* (Kby.) Wakefield District in July 1852 (F. Smith, Zool. x. 3626). "Yorkshire" (F. Smith, Entom. Aug. 1867, iii. 307).

P. signata, *(Pz.)* Woolley (Smith MS.)

P. varipes, *Sm.* "Yorkshire" (Smith, Ent. Ann. 1855, 2nd edition, p. 89).

Sphecodes gibbus, *(L.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.)

S. rufiventris, *Wesm.* Woolley (F. Smith, MS.)

S. subquadratus, *Sm.* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). "Yorkshire" (Smith, B.B., both editions, pp. 19 and 20).

S. ephippius, *(L.)*
Andrena cingulata, *(Fab.)* } Woolley (Smith MS.)

A. cineraria, *(L.)* "In Yorkshire it is not uncommon in the month of July" (Smith, B.B. 1855, p. 59 : also 2nd edition 1876, p. 35). Woolley (Smith MS.)

A. nitida, *(Fourc.)* Woolley (Smith MS.)

A. albicans, *(Kby.)* Recorded as abundant in the immediate vicinity of Bradford on the 31st of May 1851 (a lengthy account given by R. H. Meade, Zool. 1851, ix. 3220). Woolley (Smith MS.)

A. fulva, *(Schrank.)* Common species at Pannal ! Scarcroft ! and generally round Leeds ! as Woodhouse Ridge ! Buslingthorpe ! New Leeds ! Burley ! &c. Common about Wakefield : W. Talbot ! Huddersfield : Jas. Varley !

A. Clarkella, *(Kby.)*
A. Gwynana, *(Kby.)* } Woolley (Smith MS.)
A. helvola, *(L.)*

A. varians, *(Rossi).* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.)

A. atriceps, *(Kby.)*
A. nigro-ænea, *(Kby.)* } Woolley (Smith MS.)

A. fucata, *Sm.* "Yorkshire" (Smith, Ent. Ann. 1855, p. 91). Both sexes near Wakefield in June (Smith, B.B., 2nd edition, 1876, p. 55).

A. constricta, *Sm.* Near Wakefield (Smith, Ent. Ann. 1855, p. 91)

A. fulvicrus, *(Kby.)* Woolley (Smith MS.)

A. extricata, *Sm.* "Yorkshire" (Smith, B.B. 2nd edition, 1876, p. 58).

A. albicrus, *(Kby.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.)

"It has been taken in Yorkshire in the month of July ; at the sides of a sandy road on the top of Woolley Edge, near

Wakefield, are immense colonies; there it swarms in countless numbers; they occur in every flower of a species of Hawkweed, with which the sides of the lane are bordered." (Smith, B.B. 1855, p. 91).

A. chrysosceles, *(Kby.)* Woolley (Smith MS.)

A. coitana, *(Kby. ♂)=A. Shawella,* (Kby. ♀). In Yorkshire (near Wakefield in July 1852), Mr. F. Smith obtained this species colonizing in plenty: both sexes entering the same burrow. (Zool. 1852, x. 3626: Ent. Ann. 1859, p. 115: B. Bees, 2nd ed., 1876, p. 64). Woolley (F. Smith MS.)

A. analis, *Pz.* Several specimens were taken near Wakefield at the beginning of August (Smith, B.B. 1876, p. 65).

A. minutula, *(Kby.)* Woolley (Smith MS.) This species having been since divided into two, it is uncertain whether the record now applies to *A. minutula,* (Kby), or to *A. parvula,* (Kby.)

A. nana, *(Kby.)* Mr. Smith has found it very abundant in Yorkshire (B. B. 1855, p. 97: and 2nd edition, 1876, p. 67).

A. Afzeliella, *(Kby.)*
A. xanthura, *(Kby.)* } Woolley (Smith MS.)

Halictus rubicundus, *(Christ.)* Woolley (Smith, MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

H. quadricinctus, *(Fab.)* Woolley (Smith MS.)

H. leucozonius, *(Kby.)* "Yorkshire" (Smith, Zool. 1848, vii. 2171). Woolley (Smith MS.)

H. lævigatus, *(Kby.)*
H. quadrinotatus, *(Kby.)* } Woolley (Smith MS.)

H. cylindricus, *(Fab.)=H. abdominalis.* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.) Pannal, abundant on walls in 1870!

H. albipes, *(Fab.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). "Yorkshire" (Smith, B.B. 1855, p. 33). Woolley (Smith MS.)

H. subfasciatus, *Nyl.* Woolley (Smith MS.) This species was added to the British fauna by Mr. Smith's

capture of several specimens in 1842 on Woolley Edge, near Wakefield. He remarks that several insects which are common in Scotland occur there (B.B. 1855, p. 41: and 2nd edition, 1876, p. 92: Entom. 1869, iv. 267).

H. prasinus, *Sm.* "Yorkshire" (Smith, Ent. Ann. 1855, p. 90).

H. tumulorum, *(L.)*=*H. flavipes*, (Fab.) Woolley (F. Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

H. æratus, *(Kby.)*
H. morio, *(Fab.)*
H. minutus, *(Kby.)*
H. nitidiusculus, *(Kby.)*
H. minutissimus, *(Kby.)*
} Woolley (Smith MS.)

FAMILY APIDÆ.

Nomada ruficornis, *(L.)*
N. lateralis, *Pz.*
} Woolley (Smith MS.)

N. ochrostoma, *(Kby.)* Woolley (F. Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

N. xanthosticta, *(Kby.)* First discovered by the Rev. Mr. Rudd, at Worsall Grange, near Yarm, (Smith, List of B.Acul. Hym. 1851, p. 86; B. Bees, 1855, p. 128; 2nd edition, 1876, p. 122). A second specimen occurred near Wakefield (Smith, B.B., 1855, p. 128).

Variety, **mistura**, Smith. "Yorkshire" (Smith, Ent. Ann. 1855, p. 94: B.B. 1855, p. 133).

N. flavoguttata, *(Kby.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). "Yorkshire" (Smith, B. B. 1855, p. 129).

N. Fabriciana, *(L.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Has been found in Yorkshire in July (Smith, B. B. 1855, p. 134: 2nd ed., 1876, p. 126). Woolley (Smith MS.)

N. germanica, *Pz.*
N. solidaginis, *Pz.*
N. jacobææ, *Pz.*
N. lineola, *Pz.*
N. alternata, *(Kby.)*
N. succincta, *Pz.*
Epeolus variegatus, *(L.)*
Melecta armata, *(Pz.)*
} Woolley (Smith MS.)

Cœlioxys quadridentata, *(L.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). "Yorkshire" (Smith, B.B. 1855, p. 147).

C. elongata, *St. Farg.*=*C. simplex*, Nyl. Woolley, both sexes (Smith MS.) At one time Mr. Smith considered one of his Yorkshire specimens, which was a female, to be a distinct species (*C. mandibularis*, Nyl.: see Entom., Jan. 1868, iv. 4 and 6). Afterwards in his second edition, he took the same view as in his first and made it a variety of *C. elongata*.

C. rufescens, *St. Farg.* "Yorkshire" (Smith, B.B. 2nd edition, 1876, p. 145).

C. Vectis, *Curtis.* "Yorkshire" (Smith, B.B., 1855, p. 150).

Osmia rufa, *(L.)*=*O. bicornis*, (L.) Woolley (F. Smith, MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

O. ænea, *(L.)*
O. fulviventris, *Pz.*
O. aurulenta, *(Pz.)*
} Woolley (F. Smith, MS.)

Chelostoma florisomne, *(L.)* Woolley (F. Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

Anthidium manicatum, *(L.)* Woolley (Smith MS.)

Megachile centuncularis, *(L.)* Woolley (F. Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

M. circumcincta, *(Kby.)* Woolley (F. Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

M. Willughbiella, *(Kby.)* Woolley (F. Smith MS.)

Eucera longicornis, *(L.)* Specimens in Mr. Robert

Cook's collection, taken in plenty at Clifton, York, at the corner of Burton Crescent, more than 30 years ago! Now extinct in that spot, which is built upon.

Anthophora acervorum, *(Fab.)=A. retusa,* (Kby.) Woolley (F. Smith MS.) Near Wakefield, July 1852 (F. Smith, Zool. x. 3626).

Bombus muscorum, *(L.)* Woolley (Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

B. venustus, *Sm.=senilis,* Sm. Woolley (Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

B. elegans, *Seidl.=fragrans,* Illig. Not uncommon near Wakefield (F. Smith, Zool. x. 3626). Woolley (Smith MS.) Mr. Smith records that he has taken the nest in Yorkshire, and that on disturbing it the bees emitted a powerful aromatic odour (B.B., 2nd ed., 1876, p. 202; also B.M.Cat. of B.Acul.Hym., 1851, p. 100). In another place (Entom. May 1867, iii. 269) Mr. Smith states it to be more abundant in the northern counties than in the southern: "it is a common insect about Halifax and the neighbourhood of Wakefield, where I have found its nest in grass fields and on hedge-banks."

B. sylvarum, *(L.)* Woolley (Smith MS.)

B. Lapponicus, *(Fab.)* Recorded for Sheffield under the name of *B. flavicollis* (Samouelle, Ent. Useful Comp., 1819, p. 428). Halifax Moor, &c. (Smith, B.M. List of British Hym. Acul., 1851, p. 104; Ent.Ann. 1855, p. 95; B.B., 1855, p. 219; do. 2nd ed., 1876, p. 205). A few neuters taken by R. Tyrer on the Moors, about three miles north of Keighley, on ling flowers, and named by Mr. F. Smith (Tyrer, E.M.M., Oct. 1864, i. 123). Greetland Moor, 1877! James Varley!

B. Derhamellus, *(Kby.)* Woolley (Smith MS.) Mr. Smith (Entom. March 1867, iii. 242) says that this species is much more numerous in Yorkshire than in the South, and that it differs in its economy: a moss-builder in the South, in Yorkshire its nest is of frequent occurrence in hay-fields, and in such situations

principally constructed of blades of grass and small leaves of various plants, &c.

B. pratorum, *(L.)* Woolley (F. Smith MS.) Near Wakefield in July 1852 (F. Smith, Zool. x. 3626).

B. lapidarius, *(L.)* Recorded by Mr. A. H. Davis in 1835 as found near Halifax, under the name of *B. regelationis*, Pz. (Curtis, B. Ent. xii. 564). Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.) Mr. Smith remarks that in Yorkshire it frequently constructs its nest in old stone-quarries (B. B., 2nd ed., 1876, p. 212). Abundant about Leeds! Harrogate! Knaresbro'! Bramham! Bishop Wood! Grassington! Goole! &c.

B. lucorum, *(L.)* In speaking of the preponderance in Yorkshire of social hymenoptera over solitary, as observed near Wakefield in July 1852, F. Smith says: some of the common species of Bombus abound in immense profusion, particularly *B. lucorum* (Zool. x. 3626). Abundant about Leeds! Pannal! &c. At Woodsome, near Huddersfield, many thousands of dead ones were picked up under a lime tree, no doubt destroyed by birds! (See Mr. James Varley's interesting note in the 'Naturalist' for October 1877, iii. 40).

B. virginalis, *(Kby.)* = *terrestris*, Auct. Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith, MS.) Leeds! Pannal! &c.

B. hortorum, *(L.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.) Abundant about Leeds! Harrogate! Pannal! Knaresbro'! Harewood! Bramham! Parlington! Horsforth! Malham! &c.

B. soroensis, *(Fab.)* A single male example taken at Westow, Yorkshire, recorded as *B. collinus*, Sm. (Smith, List of B. Hym. Acul., 1851, p. 104; Ent. Ann. 1855, p. 95; B. B., 1855, p. 224). "This species was first taken in this country by the Rev. Mr. Rudd, at Yarm, in Yorkshire" (Smith, B. B., 2nd edition, 1876, p. 216).

B. Latreillellus, *(Kby.)* Woolley (Smith MS.)

Apathus rupestris, *Fab.)* Woolley (Smith MS.)

A. vestalis, *(Fourc.)* Woolley (Smith MS.)
Not uncommon at Pannal in 1870!

A. Barbutellus, *(Kby.)* "This bee occurs in great profusion in Yorkshire" (Smith, B. B. 1855, p. 238). Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith, MS).

A. campestris, *(Fab.)* Near Wakefield in July 1852 (F. Smith, Zool. x. 3626). Woolley (Smith MS.)

Apis mellifica, *L.* The Hive Bee.

Abundant: Leeds! Halifax! Harrogate! Pannal! Grassington! Barwick-in-Elmete! &c. So well-known an insect is the subject of much superstition, and according to Murray's Handbook for Yorkshire its name probably enters into the etymology of Bedale (Bee-dale) and other places.

YORKSHIRE NATURALISTS' UNION.

ENTOMOLOGICAL SECTION.

The Second Annual Meeting of the Section was held at Leeds on the 11th of January, 1879, when Mr. William Prest, of York, was re-elected President, and Mr. S. D. Bairstow, of Huddersfield, was elected Secretary.

The preparation of the Reports had been placed in the hands of the following members :—

Macro-lepidoptera	Mr. G. T. Porritt, F.L.S.
Micro-lepidoptera ...	Mr. William Prest.
Hymenoptera	Mr. W. Denison Roebuck.
Hymenoptera (Ichneumonidæ and Braconidæ ...	Mr. S. D. Bairstow.
Coleoptera	Mr. E. B. Wrigglesworth.

REPORTS

OF THE

ENTOMOLOGICAL SECTION:

1878.

YORKSHIRE HYMENOPTERA IN 1878

AND

SECOND LIST OF SPECIES.

By WILLIAM DENISON ROEBUCK, Leeds,

Secretary to the Yorkshire Naturalists' Union.

It will be gratifying to the Entomological Section to find the task of reporting on the Hymenoptera so soon divided, instead of being confided to one reporter only; Mr. S. D. Bairstow having undertaken to deal with the Ichneumonidæ in a separate report; and it will be still more gratifying to the two reporters to welcome new laborers into the field and to see the further specialization of the study and subdivision of the task. It seems evident that to give an impulse to the study of such orders as this, the periodical publication of results already obtained (however incomplete and meagre these may seem) is useful if not absolutely necessary. Already has the publication of the first paper brought to light the existence of one member of our Union who has studied the order in times past, and stimulated various others to commence the study for times to come.

The present report is partly a supplement to the preceding one, partly a record of the work of 1878. I regret that none of my own work appears, having been done mostly outside Yorkshire, while a combination of various causes has prevented me to a large extent from doing anything at all. We are consequently entirely indebted to Mr. Bairstow for the records of the work of 1878.

SPECIES NEW TO THE COUNTY.

This year we have to record the addition of the names of 23 species to the Yorkshire Catalogue, as follows :—

Tenthredo instabilis, *Klug.* ...	For particulars see p. 64.
Selandria serva, (*Fab.*) ...	
S. stramineipes, (*Klug*).... ...	
Blennocampa tenuicornis, (*Klug*).	
Synergus palli[di]cornis, *Hart.* ...	
S. facialis, *Hart.*	
Ichneumon molitorius, *L.* ...	
I. fabricator, *Fab.*	For particulars see Bairstow's Report.
I. varipes, *Grav.*	
Cryptus obscurus, *Grav.* ...	
C. migrator, (*Fab.*)	For particulars see p. 66.
Mesoleius rufus, (*Grav.*) ...	
M. niger, (*Grav.*)	For particulars see Bairstow's Report.
Tryphon calcator, (*Müll.*) ...	
Bassus festivus, (*Fab.*)	
Rhyssa persuasoria, *L.* ...	For particulars see p. 66.
Microgaster rugulosus, *Nees.* ...	For particulars see Bairstow's Report.
M. dilutus, *Ratz.*	
Pygostolus sticticus, (*Fab.*) ...	
Macrocentrus thoracicus, (*Nees*).	
Opius reconditor, *Wesm.*... ...	
Torymus incertus, *Först.* ...	For particulars see p. 66.
Crabro clavipes, (*L.*)	

In addition to these, several are held back for further research, including one which would appear to be new to Britain.

Family TENTHREDINIDÆ—Sawflies.

Since the appearance of my first paper Mr. Cameron of Glasgow has supplied a long-felt desideratum in entomological literature by the publication of a new 'Catalogue of the British

Tenthredinidæ,' in which he enumerates 46 genera and 325 species. (It is to be had from the Natural History Society of Glasgow, price one shilling). The genera are arranged according to an entirely new system, presumably embodying Mr. Cameron's views as to the affinities of the group. This catalogue I have adopted as the basis for the arrangement of the following records, for which I am entirely indebted to Mr. S. D. Bairstow, the names being supplied to him by the eminent Dutch entomologist Dr. S. C. Snellen van Vollenhoven, of the Hague.

Tenthredo livida *L.* Storthes Woods, near Huddersfield, 1878, Bairstow.

T. instabilis *Klug.* Two ♂, Storthes Woods, 1878, Bairstow.

Athalia rosæ (*L.*) Fairly common in Huddersfield district, 1878, Bairstow.

Selandria serva *Fab.* Fairly common in Huddersfield district, 1878, Bairstow.

S. stramineipes (*Klug*). Storthes Woods, ♀, Bairstow.

Blennocampa tenuicornis (*Klug*). A good series, Storthes Woods, 1878, Bairstow.

Family SIRICIDÆ.

Sirex juvencus *L.* To the authorities already quoted for the occurrence of this insect in profusion at York, may be added Stephens, Illustrations, vii. 116 (published Sep. 30, 1835).

I have to supplement my first report by mentioning that in the Zool. for 1854, xii. 4527, Mr. G. Norman recorded the occurrence of insects buzzing about lilac trees at his place of business in the middle of the town of Hull that year, and surmised that they had been imported with Norway or Baltic timber: the insects were referred to this species by Mr. Edward Newman.

No doubt also this would be the species referred to by Mr. Howard Vaughan (E.M.M., Nov. 1877, xiv. 141) where he stated

YORKSHIRE NATURALISTS' UNION:

BOTANICAL SECTION.

The Second Annual Meeting of the Section was held at Leeds on Jan. 11th, 1879, when the first part of the following report, relating to the observations made at the several excursions of the Union, was read and adopted, and it was resolved that a supplement should be added, containing a summary of the principal observations relating to Yorkshire Botany which have been made or published during the past year.

A list of the Mosses of the East Riding, compiled by the Secretary of the Section, was also adopted for publication.

The officers elected for 1879 were :—

PRESIDENT :

REV. WILLIAM FOWLER, M.A., *Liversedge.*

SECRETARIES :

H. FRANKLIN PARSONS, M.D., F.G.S., *Goole.*
WILLIAM WEST, *Bradford.*

The thanks of the Section are due to Prof. Babington, Mr. F. A. Lees, Mr. H. Boswell, Dr. Carrington, the Revs. W. A. Leighton, J. Fergusson, and J. Stevenson, Mr. Tuffen West, Mr. W. Phillips, and other botanists, for assistance in naming and verifying many of the more difficult and doubtful specimens.

REPORT
OF THE
BOTANICAL SECTION:
1878.

By H. FRANKLIN PARSONS, M.D., F.G.S., Goole,
Secretary of the Section.

The meetings of the Union during the past year have been held at Pontefract, April 23rd; Ilkley, May 25th; Brough, June 10th; Settle, July 20th; Hambleton, August 5th; and Wortley, September 14th. The following are the main features of the several regions explored:—

PONTEFRACT, APRIL 23RD, 1878.

At the meeting in April the ground explored was the country around Wentbridge and especially the Went Vale, between Wentbridge and Smeaton, a valley with rocky and wooded sides cut by the river Went through the range of hills formed by the outcrop of the magnesian limestone. This tract is very rich in limestone-loving plants, including some very local species, as *Hypericum montanum*, *Astragalus hypoglottis*, *Potentilla verna* and *Asperula cynanchica*, which in these steep and rocky fastnesses are able to hold their ground against the invading plough. The number of species recorded was the larger on account of the ground being somewhat familiar to many of the members, who were thus able to find and recognise rarities which would otherwise at this early period of the year have escaped notice. A tract of new red sandstone at Whitley was explored, and yielded a group of sand-loving plants different from those met with on the limestone, as *Teesdalia nudicaulis*, *Ornithopus perpusillus*, *Chærophyllum Anthriscus* and *Plantago Coronopus*. The woods on the clay between Whitley and Womersley presented nothing worthy of note. A good many denizens and colonists were noticed, among

which may be mentioned *Helleborus fœtidus*, *Berberis vulgaris*, *Sedum reflexum*, *Sison amomum* and *Smyrnium olusatrum*.

Mosses and lichens though not luxuriant occurred in tolerable numbers.

The oxlip, *Primula vulgaris β caulescens* was observed in two or three places; in one apparently wild, with reddish flowers; in two of the places at least it was noticed to be growing side by side with both the primrose and the cowslip as if a hybrid between those species.

ILKLEY, MAY 25TH, 1878.

At the meeting on May 25th the localities explored were Ilkley and neighbourhood, Otley, Rombald's Moor, Shipley, Bolton Woods, the Strid, Skipton, the Washburn Valley, &c. The number of flowering plants observed during the day was large for the time of year, but many more would no doubt have been found had the season been more advanced. The flora of Wharfedale is of a mixed character, many plants of a limestone type being associated with those usually found on the carboniferous grits and shales; this is no doubt to be attributed to the large number of limestone boulders present in the glacial beds by which in the sides and bottom of the valley the millstone grit is concealed. Bolton Woods yielded species characteristic of sub-alpine woods, as *Trollius europæus*, *Geranium sylvaticum* and *Crepis paludosa;* and Rombald's Moor those of mountain moors, as *Vaccinium Vitis-Idæa* and *Empetrum nigrum*. Many aliens and denizens occurred, as *Hesperis matronalis*, *Geranium phæum* and *pyrenaicum*, *Doronicum Pardalianches*, *Aconitum Napellus*, *Saxifraga hypnoides*, *Peucedanum Ostruthium* and *Amsinckia Lycopsoides*.

Mosses, except those of corticolous habit, were plentiful; some being of a mountain type, as *Andreæa rupestris*, *Racomitrium aciculare* and *R. heterostichum*. Saxicolous lichens were plentiful, but corticolous kinds were scarce and stunted, as is usually the case in the West Riding.

BROUGH, JUNE 10TH, 1878.

At the meeting on June 10th the localities explored were Brough, Brantingham, North and South Cave, Welton, &c., all in the East Riding; this being the first occasion on which the Union had set foot outside the border of the West Riding. The East Riding, quoted by Mr. H. C. Watson as the vice-county of South East York, has been far less diligently and systematically investigated than either the West or North Ridings, and hence, in spite of the less variety of physical features which it presents, it is perhaps more likely to yield species hitherto unrecorded for its area than are any of the other vice-counties of Yorkshire. Several such were found at this meeting. The neighborhood of Brough yields habitats of several different categories with a correspondingly varied flora, but the number of plants observed during the day might have been largely increased had the Humber Bank and Walling Fen been more fully explored.

The flora of the oolitic and chalky soils in the neighborhood of Brough and on the Wolds was a characteristic calcareous and xerophilous one approaching in some of its members, *e.g.*, *Carduus eriophorus*, a South of England type. Several maritime plants occurred on the muddy shores of the Humber and in the adjoining ditches, as *Plantago maritima*, *Glaux maritima*, *Zannichellia pedicellata*, *Enteromorpha clathrata*, &c. The ponds and swamps by the railway, where it crosses Walling Fen between Staddlethorpe and Brough, yielded many aquatic and marsh plants. In these ponds *Lemna trisulca* was found in flower—a very rare occurrence—its propagation being usually effected by buds springing from horizontal slits in the sides of the fronds. The summer of 1878 seems to have been rather favorable to the flowering of the duckweeds, *Lemna trisulca* having been found by the Goole Scientific Society in flower at Sand Holes near Swinefleet on June 1st, and *L. minor* at Rawcliffe Rabbit Hills on June 22nd. The flowering fronds of *L. trisulca* are easily recognised by the anterior half of the frond being bent downwards into the water, so that the plant as seen floating has the appearance of an irregular Maltese cross.

The flowering fronds appear always to float *on the top of* the water, whereas the sterile fronds, unlike those of the other British species of *Lemna*, are often submersed *in* the water. It may be observed that microscopic examination showed distinctly an epidermis composed of cells of flexuous outline as in the other species of *Lemna*, whereas in Hooker's 'Student's Flora' one of the characters of *L. trisulca* is given "Frond without epidermis."* Bundles of acicular crystals—raphides—are plainly seen in this plant.

Mosses occur plentifully in the neighborhood of Brough, but few Hepaticæ were met with. Lichens were abundant as regards individuals, the trunks being covered with corticolous species to an extent not observed in any part of the West Riding hitherto visited by the Union, though far less profusely than at the subsequent meeting at Settle, or indeed than is generally the case on the western slope of England. *Parmelia saxatilis*, a species not commonly fertile, was found with apothecia in Brantingham Dale.

SETTLE, JULY 20TH, 1878.

At the next meeting on July 20th the localities explored were Settle, Giggleswick, Feizor and Stackhouse; another route taken was from Malham by Gordale Scar, Malham Cove and Tarn, and Capon Hall to Settle. These places lie in the centre of a rocky mountainous limestone district, at an altitude of 600 to 1800 feet, the geological formation being mostly the hard carboniferous limestone, except near Malham Tarn and Capon Hall, where an abrupt and almost total change in the flora marks the passage on to the Silurian slate. The flora of the district was a rich and varied one, more species of flowering plants having

* Mr. J. G. Baker, F.R.S., by whom this report has been revised, says in reference to this point—"*Lemna trisulca* I believe has two kinds of fronds, one barren without epidermis and stomata, the other flowering and producing epidermis and stomata. 'English Botany' says just the same thing as Hooker's 'Student's Flora'; Hegelmaier figures the flexuous epidermal cells with a stomate. It is well you have called the attention of English botanists to the matter."

been seen than at any previous meeting; it was, except at the above-mentioned places, of a typically calcareous character, and contained many northern and subalpine species; it was also marked by the abundance of certain local species, as *Saxifraga hypnoides*, *Primula farinosa*, &c. In the abundance and exuberance of mosses and lichens, of which a rich drapery covered every stone and tree, it far surpassed any part of Yorkshire hitherto visited by the Union. This luxuriance of cryptogamic vegetation is to be attributed to the westerly situation of the district on the Atlantic side of the great central water parting, to its mountainous character and to its freedom from the atmospheric impurities present in manufacturing districts.

BISHOP'S WOOD, AUGUST 5TH, 1878.

In strong contrast to the Settle district was the next place of meeting of the Union.

On August 5th the localities explored were Hambleton, Bishop's Wood, Morton Bog, Monk Fryston, Biggin, &c., most of these places being under 50 ft. above the sea level. The nature of the soil in these several places varies between sand, clay, limestone and peat, and the flora presents corresponding variations. Few special rarities were found, the flora being the ordinary one of a fertile lowland district; nevertheless, owing partly to the time of year being that when the greatest number of plants are out, and partly to the circumstance that such districts afford congenial conditions to more kinds of flowering plants than do elevated, cold and barren ones, the number of species observed was fully as great as at any previous meeting. Very few cryptogams were found and those only the common ones of the lowlands. The neighborhood of Hambleton is rich in the fruticose Rubi, whereas at the Settle meeting all the other British species of Rubus were recorded, but none of the Fruticosi, although doubtless they occur.

WHARNCLIFFE, SEPTEMBER 14TH, 1878.

At the last meeting of the season on September 14th the places visited were Oughtibridge, Wharncliffe Wood, Wortley,

Bradfield, &c. The number of flowering plants observed was barely a third of that at the two preceding meetings, the falling off being due partly to the season being too far advanced, partly to the less extent of ground covered, but more especially to the poverty in species, which is a common character of the flora of this and other coal-measure districts. The timber—principally oak—in Wharncliffe Chase though of great age is small and stunted as compared with that in other ancient forests, and many of the trees are gradually dying; either from exhaustion of the soil, or from the atmospheric contamination resulting from coke burning and other industrial operations so largely carried on in the surrounding district.

SUMMARY.

[Here refer to the Table on the next page.]

In every class an increase is observed over the number of species recorded last year. It will be evident however from the last two columns of the table on the next page, that as regards the lower cryptogamia we have hardly touched the border of our field. Many laborers and probably a greater subdivision of labor will be necessary before we can work it at all thoroughly. We have a fair sprinkling of bryologists, but the students of the lower orders of the cryptogamia are as yet few and far between.

SUMMARY.

The number of species of plants recorded at the several meetings has been as follows:—

Class.	Wentbridge, April 23rd.	Ilkley, May 25th.	Brough, June 10th.	Settle, July 20th.	Hambleton, Aug. 6th.	Wortley, Sept. 14th.	Total. Records	Total Species Observed.	Total British Species.	
Flowering plants...	156	187	228	279	298	94	1242	546	1601	(London Catalogue).
Vascular Acrogens with Characeæ	5	17	6	12	11	7	58	24	79	Ditto.
Mosses.....	51	83	27	52	24	20	257	129	568	(Hobkirk & Boswell).
Hepaticæ.....	7	11	5	6	1	6	36	20	136	(Cooke).
Lichens	18	21	17	8	2	14	80	43	1100-1200	(Baker).
Algæ	...	4	7	6	...	...	17	15	?	
Fungi	6	7	6	4	8	24	55	50	2809	(Cooke).
Total.....	243	327	296	367	344	165	1742			

NEW COUNTY RECORDS.

The only plants recorded at our meetings in SOUTH WEST YORK—*i.e.*, that part of the West Riding south of the Aire and the Leeds and Liverpool Canal—which are not given as inhabiting that vice-county in 'Topographical Botany,' are the segregate species

Atriplex deltoidea *Bab.* } Both found in the neighborhood
Salix Smithiana *Willd.* } of Oughtibridge.

Of these the *Atriplex* was recorded for South West York in the report of this Section for 1877.

For MID-WEST YORKSHIRE the following species is not recorded in 'Topographical Botany':—

Orchis incarnata *L.* Near Settle. This however can scarcely be considered a new county record, *Orchis incarnata* being only a segregate not distinguished from *O. latifolia* by the older botanists.

On the other hand **Gentiana Pneumonanthe** *L.*, Morton Bog, is really a new county record, the station (Heslington Fields) cited in 'Topographical Botany' being mislocalised in Mid-West York.

In SOUTH EAST YORK the new records—for the reason before given—are more numerous.

Ranunculus hirsutus *Curtis.* Staddlethorpe and Brough.

Malva rotundifolia *L.* North Cave.

Trifolium striatum *L.* Brough.

Myriophyllum spicatum *L.* Staddlethorpe.

M. alterniflorum *DC.* Staddlethorpe.

Ribes nigrum *L.* Staddlethorpe.

Chærophyllum Anthriscus *Lam.* South Cave, on oolite limestone.

Conium maculatum *L.* Brough.

Carduus nutans *L.* Brough.

Carduus eriophorus *L.* Woodale near Brantingham.

Sonchus asper *Hoffm.* Brough.

Atropa Belladonna *L.* Woodale and Drewton Vale, abundant and apparently native.

Veronica montana *L.* Welton.

Myosotis collina *Reich.* Brough.

Salix alba *L.* Brough.

Typha latifolia *L.* Staddlethorpe.

Zannichellia pedicellata *Fries.* Brough.

Juncus Gerardi *Lois.* Brough.

Schænus nigricans *L.* Woodale.

Scirpus Tabernæmontani *Gmel.* Staddlethorpe.

Carex vulpina *L.* Staddlethorpe.

C. muricata *L.* South Cave.

C. hirta *L.* Staddlethorpe.

Chara fœtida *A. Br.* Staddlethorpe.

C. glomerata *Desv.* Broomfleet.

Of these species *Malva rotundifolia*, *Atropa Belladonna* and *Juncus Gerardi* have been recorded in the reports of the Botanical Record Club. *Ribes nigrum* occurs on the "banks of the Derwent and near York, an escape from gardens." (Baines). (? in E. Riding). *Carduus eriophorus*, "From Market Weighton to Londesborough." (Baines). *Veronica montana*, "Firby Woods near Malton." (Baines). *Zannichellia pedicellata* "has been found in salt water ditches near Hull" C. C. Babington. (Baker). *Carex vulpina*, "Banks of the Derwent near Kirkham." (Baines).

RARE PLANTS OBSERVED.

Of plants observed on our rambles which though not new to the vice-counties in which they were observed, are nevertheless sufficiently infrequent to be worth mentioning, the following may be mentioned:—

Thalictrum montanum. Gordale Scar.

Ranunculus Lenormandi *Schultz.* Eldwick and Wharncliffe.

Trollius europæus *L.* Bolton Woods and Malham Moor.

Cardamine amara *L.* Farnley near Otley.

Cochlearia officinalis *β* alpina. Malham Moor.

Thlaspi occitanum. Malham Cove.

Teesdalia nudicaulis *Brown.* Whitley Thorpe.

Reseda lutea *L.* Wentbridge and Brough.

Viola canina *L.* Morton Bog.

V. lutea *Huds.* Settle and Malham Moor.

Stellaria nemorum *L.* Farnley near Otley, and Shipley.

Alsine verna *Bartling.* Settle.

Hypericum montanum *L.* Wentbridge.

Geranium sanguineum *L.* Gordale.

G. sylvaticum *L.* Bolton Woods and Gordale.

Rhamnus catharticus *L.* Biggin.

Astragalus hypoglottis *L.* Smeaton Crags.

Prunus Padus *L.* Farnley and Wharncliffe.

Potentilla verna *L.* Wentbridge.

Rubus incurvatus *Bab.* Morton Bog.

R. carpinifolius *W. & N.* Hambleton.

R. Hystrix *Weihe.* Hambleton.

R. saxatilis *L.* Feizor.

R. Chamæmorus *L.* Malham Tarn.

Rosa mollissima *Willd.* Malham and Wharncliffe.

Ribes rubrum *β* sylvestre. Bolton Woods.

Cotyledon umbilicus *L.* Bradfield.

Saxifraga hypnoides *L.* Bolton Woods and Settle.

Apium graveolens *L.* Brough and Hambleton.
Sison amomum *L.* Kirk Smeaton.
Galium sylvestre *Poll.* Malham Cove.
Asperula cynanchica *L.* Wentbridge.
Carduus heterophyllus *L.* Capon Hall near Settle.
Inula conyza *DC.* Wentbridge.
Erigeron acris *L.* Micklefield.
Picris hieracioides *L.* Biggin and Micklefield.
Crepis paludosa *Mœnch.* Bolton Woods and Malham Tarn.
Hieracium pallidum *Fries.* Malham Cove.
H. prenanthoides *Vill.* Malham Cove.
Vaccinium Vitis-Idæa *L.* Rombald's Moor and Malham Tarn.
Gentiana Pneumonanthe *L.* Morton Bog.
Linaria minor *Desf.* Monk Fryston.
Lathræa squamaria *L.* Bolton Woods.
Myosotis sylvatica *Ehrh.* Bolton Woods and Denton.
Cynoglossum officinale *L.* Wentbridge.
Hottonia palustris *L.* Hambleton.
Primula farinosa *L.* Giggleswick, Malham, &c.
Glaux maritima *L.* Brough.
Samolus Valerandi *L.* Staddlethorpe.
Plantago maritima *L.* Brough.
Salix pentandra *L.* Farnley and Malham Tarn.
S. purpurea *L.* Ilkley and Settle.
Taxus baccata *L.* Giggleswick Scar and Malham.
Typha angustifolia *L.* Staddlethorpe.
Potamogeton heterophyllus *Schreb.* Staddlethorpe.
P. acuminatus. Malham Tarn.
P. pectinatus *L.* Staddlethorpe.

Zannichellia palustris *L.*=**brachystemon.** Monk Fryston.

Triglochin maritimum *L.* Brough.

Paris quadrifolia *L.* Bolton Woods and Feizor.

Blysmus compressus *Panz.* Malham.

Scirpus maritimus *L.* Brough.

Carex lævigata *Sm.* Wharncliffe.

C. vesicaria *L.* Staddlethorpe.

C. ampullacea *Good.* Malham Tarn.

Sesleria cærulea *Scop.* Bolton Woods, Malham and Settle.

Kœleria cristata *Pers.* Settle.

Sclerochloa rigida *Link.* Brough and Monk Fryston.

Brachypodium pinnatum *Beauv.* Wentbridge, Settle and Hambleton.

Asplenium viride *Huds.* Settle and Malham.

Cystopteris fragilis *Bench.* Malham and Settle.

Nephrodium rigidum *Desv.* Settle.

DENIZENS AND ALIENS OBSERVED.

Of plants of doubtful indigenousness the following have been observed at our meetings, those well established if not native being distinguished as "denizens," those evidently introduced but showing some amount of persistence as "aliens," and stray weeds springing up from chance scattered seeds as "casuals."

Clematis Vitalba *L.* (alien or denizen). Monk Fryston.

Helleborus fœtidus *L.* (denizen). Kirk Smeaton.

Aconitum Napellus *L.* (alien). Farnley and Hambleton.

Meconopsis cambrica *Vig.* (denizen). Feizor.

Sinapis nigra *L.* (casual). Staddlethorpe, on railway ballast.

Erysimum orientale *Brown* (casual). Staddlethorpe, on railway ballast.

Hesperis matronalis *L.* (denizen). Bolton Woods.

Cheiranthus Cheiri *L.* (alien). Pontefract.

Tilia intermedia *DC.* (alien). Hambleton.

Linum usitatissimum *L.* (casual). Oughtibridge.

Geranium phæum *L.* (denizen). Cottingley.

G. pyrenaicum *L.* (denizen). Cottingley.

Staphylea pinnata *L.* (alien). Welton Dale.

Potentilla hirta *Koch.* (casual). Settle.

Sedum Telephium *L.* (denizen). Hambleton.

S. reflexum *L.* (denizen). Kirk Smeaton.

Peucedanum Ostruthium *Koch.* (casual). Farnley.

Doronicum Pardalianches *L.* (denizen). Denton.

Vinca minor *L.* (alien). Wentbridge.

Lycium barbarum *L.* (alien). Little Fenton.

Linaria Cymbalaria *Mill.* (denizen). Ilkley and Settle.

Lamium maculatum *L.* (alien). Malham and Settle.

Amsinckia lycopsoides *Lehm.* (casual). Shipley.

Anchusa sempervirens *L.* (alien). Stackhouse.

Chenopodium Bonus-Henricus *L.* (denizen). Settle.

Castanea vulgaris *L.* (alien). Wharncliffe.

Carpinus Betulus *L.* (alien). Selby. Common in hedges.

Populus nigra *L.* (alien). Whitley and Hambleton.

Ruscus aculeatus *L.* (denizen). Stackhouse.

MOSSES.

Of the plants of this order the following are the more noteworthy that have been observed at our meetings :—

Sphagnum squarrosum *Pers.* Plentifully in fruit at Malham Tarn.

Andreæa rupestris *L.* Embsay Moor.

Gymnostomum microstomum *Hedw.* Near Ilkley.

Dicranum sp. ind.† Wharncliffe Crags.

*Didymodon luridus *Hornsch.* Went Vale.

Eucladium verticillatum *L.* Malham.

Ditrichum flexicaule *Schwg.* Brantingham Wold, North Cave and Malham.

*Trichostomum crispulum *Bruch.* Malham.

Barbula rigidula *Dicks.* Went Vale.

B. tortuosa *L.* Went Vale and Malham.

B. intermedia *Bird.* Kirk Smeaton and Malham.

Racomitrium aciculare *L.* Farnley near Otley, and Malham Tarn.

R. heterostichum *Hedw.* Near Otley, and Malham Tarn.

R. lanuginosum *Hedw.* Malham Cove, rare on limestone.

Ptychomitrium polyphyllum *Dicks.* Malham Tarn.

Orthotrichum pulchellum *Sm.* Smeaton Crags.

Tetraphodon mnioides *L. fil.* Malham Tarn.

Philonotis calcarea *B. & S.* Gordale.

Bryum pendulum *Hornsch.* Embsay Moor.

B. pallens *Swartz.* Embsay Moor and by Washburn Reservoir.

Zieria julacea *Schpr.* Settle.

Mnium serratum *Schrad.* Ilkley, Settle and Wharncliffe.

M. subglobosum *B. & S.* Ilkley.

Cryphæa heteromalla *Hedw.* Brantingham.

Neckera crispa *L.* Skipton, Woodale near South Cave, and Settle.

Leskea polycarpa *Ehrh.* Wentbridge.

Climacium dendroides *L.* The Strid.

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* The species marked thus are not in Hobkirk's list of West Riding mosses published in 1873.

† The authorities to whom this moss has been submitted are not agreed about it; by the Rev. J. Fergusson it is considered to be a new species and named provisionally *Dicranum saxicola.*

Brachythecium plumosum *Swartz.* Farnley.

Hylocomium flagellare *Dicks.* Ilkley.

Rhynchostegium tenellum *Dicks.* Wentbridge.

Plagiothecium elegans *Auct.* = **P. Borrerianum** *Spruce.* Farnley, Hambleton and Wharncliffe.

Hypnum revolvens *Swartz.* Near Ilkley, and Malham.

H. uncinatum *Hedw.* Near Ilkley.

H. cordifolium *Hedw.* Ilkley.

H. stramineum *Dicks.* Ilkley and Malham.

***H. giganteum** *Schpr.* Ilkley.

HEPATICÆ.

Few Hepaticæ besides the very commonest kinds have been recorded at our meetings, the following being the least frequent:—

Scapania nemorosa *Hook.* Farnley.

Jungermannia scutata *Web.* Knottingley.

J. barbata *Schreb.* Wharncliffe.

J. barbata var. **attenuata.** Farnley.

Lepidozia reptans *Nees.* Wharncliffe.

Chiloscyphus polyanthus *Cord.* Malham Cove.

Aneura multifida *Dum.* Washburn Reservoir.

Reboulia hemisphærica *Raddi.* Malham.

LICHENS.

The students of this difficult order are few, and many parts of the West Riding are unfavourable to the growth of these plants, especially of the tree-loving kinds. The following among others have been noted at our meetings:—

Collema fluviatile *Huds.* Malham Cove, known there since 1724.

***Cladonia pungens** *Flerk.* Whitley Thorpe.

***Ramalina fraxinea** *Fries.* Brantingham, fr.

Cetraria aculeata *Fries.* Wharncliffe.

Platysma glaucum *L.* Wharncliffe.

Peltigera polydactyla *Hoffm.* Wharncliffe.

*Parmelia olivacea *L.* Ilkley and Brough.

P. caperata *L.* Brough.

P. lævigata *Sm.* Wharncliffe.

*Physcia ciliaris *L.* Brough.

Pannaria nigra *Huds.* Wentbridge.

Placodium candicans *Dicks.* Smeaton Crags.

*Lecanora vitellina *Ach.* Ilkley, Whitley and Brough.

L. badia *Ach.* Washburn Valley.

Lecidea contigua *Fries.* Farnley.

L. mollis *Wahl.* Farnley.

*Endocarpon hepaticum *Ach.* Wentbridge.

E. miniatum *L.* Malham Cove.

*E. fluviatile *DC.* Wales Wood.

Verrucaria macrostoma *Duf.* Smeaton Crags.

*V. fuscella *Turn.* Washburn Valley.

Those marked * are not given for Yorkshire in Leighton's 'Lichen Flora,' ed. 2.

FUNGI.

Our meetings have hitherto yielded comparatively few Fungi. More of the larger fleshy species were met with at Wharncliffe than at other of the places at which excursions were held, owing to the date being in September, most of these plants coming to perfection in the autumn.

In this as in the other orders of Cryptogamia we shall probably not accomplish much work until we have a greater subdivision of labor and a few enthusiastic specialists. The following species have been met with:—

Agaricus vaginatus *Bull.* Wharncliffe.

A. muscarius *L.* Wharncliffe.

A. rubescens *Pers.* Wharncliffe.

A. melleus *Vahl.* Wharncliffe.

A. rutilans *Schæff.* Wharncliffe.

A. laccatus *Scop.* Wharncliffe.

A. fusipes *Bull.* Hambleton.

A. umbelliferus *L.* Ilkley.

A. muralis *Sow.* Denton.

A. squarrosus *Müll.* Wharncliffe.

A. hypnorum *Batsch.* Wharncliffe.

A. semiglobatus *Batsch.* Hambleton.

A. fascicularis *Huds.* Wharncliffe.

A. semilanceatus *Fries.* Wharncliffe.

A. separatus *L.* Settle.

Paxillus involutus *Fries.* Wharncliffe.

Russula emetica *Fries.* Wharncliffe.

R. virescens *Fries.* Wharncliffe.

Lactarius quietus *Fries.* Wharncliffe.

Hygrophorus coccineus *Fries.* Wharncliffe.

H. psittacinus *Fries.* Wharncliffe.

H. miniatus *Fries.* Wharncliffe.

Marasmius oreades *Fries.* Brough and Settle.

Cantharellus muscigenus *Fries.* Malham.

Boletus luridus *Fries.* Wharncliffe.

Polyporus hispidus *Fries.* Little Fenton.

P. squamosus *Fries.* Whitley and Ilkley.

P. versicolor *Fries.* Wentbridge and Wharncliffe.

P. betulinus *Fries.* Wharncliffe.

Stereum hirsutum *Fries.* Wharncliffe.

Calocera viscosa *Fries.* Wharncliffe.

Dacrymyces stillatus *Nees.* Whitley.

Cynophallus caninus *Fries.* Wharncliffe.

Scleroderma vulgare *Fries.* Wharncliffe.

Lycogala epidendron *Fries.* Brough.

Puccinia adoxæ *Schl.* (? = Saxifragarum.) Esholt.

P. arundinacea *Hedw.* Staddlethorpe.

Trichobasis oblongata *B.* Shipley.

T. linearis *Lev.* Saltaire.

Triphragmium ulmariæ *Link.* Hambleton.

Lecythea saliceti *Lev.* Bishop's Wood.

Æcidium violæ *Schum.* Wentbridge and Brantingham.

Æ. valerianacearum *Dutz.* Hawksworth.

Æ. rubellum *Pers.* Staddlethorpe.

Æ. tussilaginis *Pers.* Staddlethorpe.

Ræstelia lacerata *Tul.* Hambleton.

Erysiphe Martii *Link.* Bishop's Wood.

Morchella esculenta *Pers.* Wentbridge.

Peziza trechispora *B. & Br.* Staddlethorpe and Malham.

Xylaria hypoxylon *Grev.* Wentbridge.

ALGÆ.

Little too has been done in this order. The workers in this field are few, and those who have the courage to enter it approach it rather from the microscopic or physiological side than from that of systematic botany; the want of a recent British manual of the freshwater algæ being a great impediment in the way of their study.*

* Botanists acquainted with the Latin language will find Rabenhorst's 'Flora europæa Algarum aquæ dulcis et submarinæ' (E. Kummerum, Leipzig, 3 vols., 1864—1868), an excellent book, cheap and full, with figures of all the genera.

Batrachospermum moniliforme *Roth.* Drewton and Malham.

Chætophora elegans *Ag.* Brantingham Wold.

Cladophora glomerata *L.* Ilkley.

Rivularia angulosa *Roth.* Staddlethorpe.

R. (Ainactis) calcarea *E. B.* Malham.

Enteromorpha clathrata *Grev.* River Humber, Brough.

Nostoc commune *Vauch.* Everthorpe.

N. verrucosum *L.* Malham Cove.

Palmoglœa macrococca *Ktzg.* Otley.

Glœocapsa polydermatica *Ktzg.* Otley.
(Probably states of *Cladonia*).

Aphanocapsa testacea *Nãg.* Near Settle.
(Probably a condition of *Collema*).

Navicula cuspidata *Ktzg.* Brantingham Wold.

Encyonema prostratum *Ralfs.* Malham Tarn.

Meridion circulare *Ag.* Gordale.

SUPPLEMENT TO THE BOTANICAL REPORT FOR THE YEAR 1878.

By H. FRANKLIN PARSONS, M.D., F.G.S., Goole,
Secretary of the Botanical Section.

In the following part of the Report are included some of the principal observations on Yorkshire Botany which have been made or published during the past year otherwise than at the Union Meetings.

NEW COUNTY RECORDS
(additional to Topographical Botany).

The following are taken from the report of the Botanical Locality Record Club for 1877 issued in 1878 :—

Species.	*Locality & Observer.*	*Vice-County.*
Thalictrum flexuosum *Bernh.*...	Lonton. F. A. Lees.	N.W.
	Monk Fryston. W. N. Cheesman.	M.W.
Ranunculus diversifolius *Gilib.* ...	Doncaster. A. Carr.	S.W.
R. Godronii *Gren.*... ...	Askham Bog. G. Webster.	S.W.
R. Drouettii *Schultz.*	Kiveton. A. Carr.	S.W.
R. fluitans *L.*...	Anston. A. Carr.	S.W.
	Saltaire. W. West.	M.W.
R. hirsutus *L.*... ...	Goole. T. Hick and W. West.	S.W.
Fumaria Boræi *Jord.*	Skipwith. H. F. Parsons.	S.E.
Draba brachycarpa *Jord*... ...	Lindrick. A. Carr.	S.W.
	Ripon. T. J. Foggitt.	M.W.
Cardamine sylvatica *Link.* ...	Riccall. H. F. Parsons.	S.E.
Helianthemum canum. ...	Malham Cove. F. A. Lees.	M.W.
Viola Reichenbachiana *Bar.*	Roche Abbey. F. A. Lees.	S.W.
	South Stainley. T. J. Foggitt.	M.W.
V. lactea *Sm.*	Rawcliffe. H. F. Parsons.	S.W.
Polygala oxyptera *Reich*... ...	Firbeck. F. A. Lees.	S.W.
	Knaresborough. T. J. Foggitt.	M.W.

Arenaria tenuifolia *L.* ... Wetherby. J. S. Wesley. M.W.

Hypericum elodes *L.* Rawcliffe, Greenfield and Rivelin. W. West, J. Whitehead and A. Carr. S.W.

Trifolium filiforme *L.* ... ... Thirsk. T. J. Foggitt. N.E.
Rawcliffe. H. F. Parsons. S.W.

Potentilla verna *L.*... ... ...Hawnby. W. Foggitt. N.E.

Rubus suberectus *And.*... ...Wharncliffe. A. Carr. S.W.

R. fissus *Lindl.*... ... ... Ecclesfield. A. Carr. S.W.

R. thyrsoideus. ... ... Rivelin. A. Carr. S.W.

R. leucostachys *Sow.* ... ... A. Carr. S.W.
F. A. Lees. M.W.

R. Salteri *Bab.* ... ... Wigglesworth. F. A. Lees. M.W.

R. macrophyllus *Weihe*.... ... Wharncliffe. A. Carr. S.W.

Var. umbrosus.... ... ... F. A. Lees. M.W.

R. mucronulatus *Bor.* ... Meanwood. F. A. Lees. M.W.

Var. festivus *Müll.*... ... Wharncliffe. A. Carr. S.W.

R. Bloxamii *Bab.* ... ... Bradfield. A. Carr. S.W.

R. pygmæus *Weihe*.....Quaker's Wood. G. Webster. M.W.

R. Kœhleri *Weihe*.... ... ... Wharncliffe. A. Carr. S.W.

R. diversifolius *Lindl.* ... Rivelin Valley. A. Carr. S.W.

R. humifusus *Weihe.* ... ... Wharncliffe. A. Carr. S.W.

R. atrorubens *Wirtg*...Loxley & Wharncliffe. A. Carr. S.W.

R. glandulosus *Bell.* ... ... Wharncliffe. A. Carr. S.W.

R. corylifolius *Sow.* ... ... A. Carr. S.W.

Rosa systyla *Bast.* ... Conisborough. F. A. Lees. S.W.

R. lutetiana *Lem.*... ... ... A. Carr. S.W.

R. dumalis *Bechst*... ... ... A. Carr. S.W.

R. urbica *Lem*... ... ... A. Carr. S.W.

R. biserrata *Merat*.... ... ... Bell Hagg. A. Carr. S.W.

Rosa Reuteri *Godet.* ... Wyoming Brook. A. Carr. S.W.
R. coriifolia *Fr.*... ... ... Lindrick. A. Carr. S.W.
R. obtusifolia *Desv*... ... ... Bell Hagg. A. Carr. S.W.
R. Watsoni *Baker* ... ... Redmires. A. Carr. S.W.
R. arvatica *Puget.* ... ... Bell Hagg, &c. A. Carr. S.W.
R. Kosinciana *Bess* ... ...Ecclesfield, &c. A. Carr. S.W.
R. verticillacantha *Merat* ... Redmires, &c. A. Carr. S.W.
Epilobium angustifolium *L*...Pocklington. F. A. Lees. S.E.
Circæa alpina *L*... ... Howgill Fells. F. A. Lees. N.W.
Ceratophyllum aquaticum *E. B.* Drax. H. F. Parsons. M.W.
(Misquoted for S. W. York in report).
Brough. H. F. Parsons. S.E.
Sedum anglicum *L.* ... Howgill Fells. F. A. Lees. N.W.
Sium latifolium *L*... ... Goole, &c. H. F. Parsons. S.W.
Drax. H. F. Parsons. M.W.
Hieracium boreale *Fries* ... Tickhill. F. A. Lees. S.W.
H. umbellatum *L.* ... Hatfield Moor. H. F. Parsons. S.W.
Arctium majus *Schkuhr.* ... Doncaster. F. A. Lees. S.W.
Carduus acaulis *L*... ... ... Lindrick. A. Carr. S.W.
Centaurea Calcitrapa *L.* Brighouse (casual). W. West. S.W.
Gentiana Pneumonanthe *L*...Morton Bog. W. Fowler. M.W.
Cuscuta europæa *L*... Lofthouse. George Roberts. S.W.
Verbascum nigrum *L*...Frizinghall (casual). W. West. M.W.
Limosella aquatica *L.* ... Rawcliffe. H. F. Parsons. S.W.
Centunculus minimus *L.* ... Maltby. G. E. Smith. S.W.
Euphorbia platyphylla *L*... Hambleton. W. West. M.W.
Ornithogalum nutans *L.*
Sowerby near Thirsk (denizen). T. J. Foggitt. N.E.
Potamogeton compressus *L.* Selby Canal. F. A. Lees. M.W.

Potamogeton obtusifolius *M. & K.* Kiveton. A. Carr. S.W.

P. rufescens *Schrad...* ... ... Shipley. W. West. M.W.

Zannichellia eu-palustris *L.*

Monk Fryston. H. F. Parsons. M.W.

Juncus compressus *Jacq.* Roche Abbey. G. E. Smith. S.W.

J. Gerardi *Loisel.* ... ... Skipwith. H. F. Parsons. S.E.

Carex divisa *Huds.* ... ... Goole. H. F. Parsons. S.W.

C. Œderi *Ehrh.* ... ... Lower Bradfield. A. Carr. S.W.

C. distans *L...* ... ... Maltby. G. E. Smith. S.W.

C. capillaris *L....* ... ... Gordale Scar. W. West. M.W.

Glyceria plicata *Fr.* ... Askham Bog. F. A. Lees. M.W.

Poa alpina *L.*...Whernside. F. A. Lees and W. West. M.W.

Lepturus filiformis *Trin.* ... Goole (casual). W. West. S.W.

Asplenium lanceolatum *H.* Upper Bradfield. R. Gatty. S.W.

Chara flexilis *L...* ... ... Adel. F. A. Lees. M.W.

C. capitata *A. Br.*... ... Malham Tarn. F. A. Lees. M.W.

C. translucens *Pers.* ... ... Sherburn. F. A. Lees. M.W.

C. glomerata *Desv.* ... Broomfleet. H. F. Parsons. S.E.

C. fœtida *A. Br.*... ... Staddlethorpe. H. F. Parsons. S.E.

Lindrick. A. Carr. S.W.

Sherburn. F. A. Lees. M.W.

C. hispida *L...* ... ... Malham Tarn. F. A. Lees. M.W.

C. fragilis *Desv...* ... ... Askern. F. A. Lees. S.W.

Malham Tarn. F. A. Lees. M.W.

The following records have been sent to the Botanical Section or to the 'Naturalist.' The plants mentioned in the list though not new to the county or vice-counties, are of sufficient rarity to be worth notice.

Actæa spicata *L.* Boston Spa (getting scarce). J. Emmet.

Draba incana *L.* Whernside and Arncliffe. W. West.

Saponaria Vaccaria *L.*
Near Huddersfield (casual). J. Robinson.

Silene noctiflora *L.* Boston Spa. J. Emmet.

Hypericum montanum *L.* Gordale (alt. 800 ft.) W. West.

Erodium moschatum *Heirt.* Boston Spa. J. Emmet.

Trifolium maritimum *Huds.* Goole (casual). T. Dickin.

Cicer arietinum *Willd.*
Near Huddersfield (casual). J. Robinson.

Scorpiurus subvillosa *DC.*
Near Huddersfield (casual). J. Robinson.

Rubus calvatus *Blox.* Dringhouses. G. Webster.

R. eu-macrophyllus *Weihe.* Poppleton. G. Webster.

R. Bloxami *Lees.* Acomb Wood. G. Webster.

R. fusco-ater *Weihe.* Poppleton. G. Webster.

R. Lejeunii *Weihe.* Lotherton Moor. G. Webster.

R. Balfourianus *Blox.* Acomb. G. Webster.

Potentilla procumbens *Sibth.*
Shipley, Hawksworth and Adel. W. West.

P. alpestris *Hall. fil.* Malham Tarn (alt. 1500 ft.) W. West.

P. hirta *Koch.* Hatfield Moor (casual). H. F. Parsons.

Rosa tomentosa *Sow.* d scabriuscula.
Dent Head. W. West.

Epilobium obscurum *Schreb.* Bingley, Adel, &c. W. West.

Œnothera biennis *L.* Shipley (casual). W. West.

Sedum Rhodiola *DC.* Ingleborough. W. West.

Sison Amomum *L.* East Cowick. H. F. Parsons.

Sium latifolium *L.* Barlby. W. West.

Galium spurium *L.* Clifton and Elland Edge. G. L. Lister.

Doronicum Pardalianches *L.* Hexthorpe. H. F. Parsons.

Taraxacum erythrospermum.
Malham Tarn (alt. 1500 ft.) W. West.

Vaccinium Myrtillus *L.*
Cliff Wood (rare in Vale of York). H. F. Parsons.

Scutellaria minor *L.* Breighton Common. H. F. Parsons.

Salvia Verbenaca *L.* Holme-on-Spalding-Moor. H. F. Parsons.

Galeopsis versicolor *Curt.* Near Brighouse. G. L. Lister.

Rumex scutatus *L.* Sawley (alien). Liverpool Nat. Field Club.

Polygonum dumetorum (?). Fixby. G. L. Lister.

Habenaria chlorantha *Bab.* Hawksworth. W. West.

Ophrys apifera *Huds.* Byram. W. N. Cheesman.

Gagea lutea *Ker.* Boston Spa. J. Emmet.

Neottia nidus-avis *Rich.* Maltby. T. Dickin.

Allium oleraceum *L.* Shipley. W. West.

Scirpus pauciflorus *Lightf.* Norwood. W. West.

Eriophorum latifolium *Hoppe.* Malham Tarn. W. West.

E. polystachyon var. **minus** *Bab.* Norwood. W. West.

Carex acuta *L.* Goole. T. Dickin.

Polypodium Phegopteris *L.* Baildon. W. West.

P. Dryopteris *L.* Baildon. W. West.

P. Robertianum *Hoffm.* Arncliffe. W. West.

Equisetum maximum *Lam.* Skipton. W. West.

Selaginella Selaginoides *Gray.*
Arncliffe and Whernside. W. West.

MOSSES.

The moss flora of Yorkshire is being diligently investigated by several observers, and several important additions have been made during the year. The following list includes some of the principal rarities which have been noticed, those marked * being, it is believed, previously unrecorded for the county.

Species.	*Locality & Observer.*	*Vice-County.*
Sphagnum teres *Angst.* ...	Dent Dale. — Barnes.	M.W.
S. papillosum *Lindb.*	Whernside. W. West.	M.W.

Sphagnum intermedium *Hoffm.* Whernside. W. West. M.W.
Marsden Moor. C. P. Hobkirk. S.W.

Gymnostomum rupestre *Schwg.*
Arncliffe and Whernside. W. West. M.W.

Dicranella squarrosa *Schrad.*
Harden Moss. C. P. Hobkirk. S.W.

Campylopus flexuosus *Brid...* Arncliffe. W. West. M.W.

*Seligeria acutifolia *Lindb...*Arncliffe. J. Whitehead. M.W.

*S. tristicha *Brid.* ... ... Litton. J. Whitehead. M.W.

Pottia Heimii *Hedw.* ... ... Goole. H. F. Parsons. S.W.

Didymodon cylindricus *Burch.*
Wetherby. J. S. Wesley. M.W.

D. luridus *Hornsch.* ... Wentbridge. H. F. Parsons. S.W.
Coneysthorpe. R. Spruce. N.E.
Wetherby. J. S. Wesley. M.W.
Blacktoft. H. F. Parsons. S.E.

Ditrichum flexicaule *Schwg.*
Skipton. Arncliffe. Whernside. W. West. M.W.

Barbula aloides *Koch.* ... .. Addingham. W. West. M.W.

B. recurvifolia *Schpr.*... Dykemarsh. H. F. Parsons. S.W.

B. spadicea *Milt.* ... ...Dykemarsh. H. F. Parsons. S.W.

B. intermedia *Brid.*... Kirk Smeaton. H. F. Parsons. S.W.

Trichostomum mutabile *Burch.*
Wentbridge. H. F. Parsons. S.W.

Distichum capillaceum *L.* ... Arncliffe. W. West. M.W.

Encalypta ciliata *Hedw.* ... Whernside. W. West. M.W.

Grimmia conferta *Funk...* Dent Dale. — Barnes. M.W.

G. Donniana *Sow...*Summit of Whernside. W. West. M.W.

Racomitrium lanuginosum *Hedw.*
Dykemarsh. H. F. Parsons. S.W.

Ptychomitrium polyphyllum *Dicks.*
Dykemarsh. H. F. Parsons. S.W.

Zygodon viridissimus v. rupestris.
Storthes Hall. C. P. Hobkirk. S.W.

Splachnum sphæricum *L. fil.* Whernside. W. West. M.W.
Whampton Moor. C. P. Hobkirk. S.W.

Breutelia arcuata *Dicks.*
Arncliffe and Whernside. W. West. M.W.

Leptobryum pyriforme *L...* Holgate. G. Webster. M.W.

Œdipodium Griffithianum *Dicks.*
Barbon Fell. G. Stabler. M.W.

Zieria julacea *Schp.* ... ... Whernside. W. West. M.W.

Bryum pseudotriquetrum *Hedw.*
Whernside. W. West. M.W.

Mnium stellare *Hedw...* Roche Abbey. H. F. Parsons. S.W.

*Aulacomnium turgidum *Wahl.*
Whernside. F. A. Lees and W. West. M.W.

Oligotrichum hercynicum *Ehrh.*
Harden Moss. C. P. Hobkirk. S.W.
Summit of Whernside. W. West. M.W.

Polytrichum formosum *Hedw.* Whernside. W. West. M.W.

*P. strictum *Banks.* Whernside. W. West & F. A. Lees. M.W.

Fissidens viridulus *Wils.* ... Arncliffe. W. West. M.W.

*Fontinalis gracilis *Lindb...* Malham. Prof. Barker. M.W.

Habrodon Notarisii *Schp...* Dent Dale. — Barnes. M.W.

Thuidium abietinum *L.* ... Wetherby. J. S. Wesley. M.W.

Orthothecium rufescens *Dicks.*...Arncliffe. W. West. M.W.

Brachythecium salebrosum.
Ledsham Park. F. A. Lees. M.W.

B. rivulare *B. & S.* ... ... Whernside. W. West. M.W.

Hyocomium flagellare *Dicks.*
Marsden Moor. C. P. Hobkirk. S.W.

Rhynchostegium murale *Hedw.* **β complanatum.**
Liversedge. W. Fowler. S.W.

Plagiothecium pulchellum *Hedw.*
Whernside. W. West. M.W.

Amblystegium confervoides *Brid.* Bilsdale. G. Stabler. N.E.

Hypnum imponens *Hedw.*... Skipwith. H. F. Parsons. S.E.

H. ochraceum *Turn.*... Marsden Moor. C. P. Hobkirk. S.W.

H. stramineum *Dicks.*
Shipley and Whernside. W. West. M.W.

H. giganteum *Schpr.* ... ... Ilkley. J. S. Wesley. M.W.

H. cuspidatum *L.* **β pungens.** Wetherby. J. S. Wesley. M.W.

Didymodon luridus. Dr. Spruce points out that this moss, found at the Union meeting at Sharleston in 1877, and stated in the last annual report of this section to be new to the county, is not so, it having been found by him more than 30 years ago at various places in the county, and "Yorkshire" being among the localities given for it by Wilson in 'Bryologia Britannica.' The stations given above show that it has a wide range in the county, and it is doubtless often passed by as a *Barbula* of the *fallax* group, from which the peculiar dot-like areolation of the leaves is the best distinction.

Paludella squarrosa. Mr. G. Stabler states that owing to the draining of Terrington Carr this moss has disappeared from thence, and is probably lost as a native of Yorkshire and of Britain. It should be looked for on the wet commons of the East Riding.

HEPATICÆ.

The following species have been recorded as found in Yorkshire:—

Gymnomitrium concinnatum *Corda.*
Whernside. W. West. M.W.

Plagiochila spinulosa *N.*... Dent Dale. G. Stabler. M.W.

Jungermannia minuta *Cr.*...Blaeberry Gill. S. Anderson. N.E.

J. curvifolia *Dicks.* ... ... Blaeberry Gill. G. Stabler. N.E.

Jungermannia Genthiana *Nees v. E.* Dent. G. Stabler. M.W.
J. pumila *With...* ... ... Dent. G. Stabler. M.W.
J. trichophylla *L...* ... Bolton Woods. W. West. M.W.
J. bicrenata *Lindb.* ... Roche Abbey. H. F. Parsons. S.W.
Saccogyna viticulosa *Dum.* ... Dent. G. Stabler. M.W.
Mastigobryum trilobatum *N. von E.* Dent. G. Stabler. M.W.
Cephalozia catenulata *Lindb.*
Blaeberry Gill. M. B. Slater. N.E.
Lejeunia minutissima *Dum.* ... Dent. G. Stabler. M.W.
L. hamatifolia *Dum.* ... ... Dent. G. Stabler. M.W.
Madotheca lævigata *Dum...*Castle Howard. G. Stabler. N.E.
Frullania fragilifolia *Tayl.* ... ... Dent. G. Stabler. M.W.
Pellia calycina *N. von E.* ... ... Dent. G. Stabler. M.W.
Metzgeria conjugata *Lindb...* ... Dent. G. Stabler. M.W.
Reboulia hemisphærica *Raddi...* Dent. G. Stabler. M.W.
Targionia hypophylla *L.* ... Dent Head. W. West. M.W.
Riccia fluitans *L.* ... ... Howden. H. F. Parsons. S.E.
Hirst Courtney & Drax. H. F. Parsons. M.W.
R. glauca *L.* ... ... Goole. H. F. Parsons. S.W.

LICHENS.

For the reasons given in the first part of this report there is comparatively little to record in this order. The following may be noted:—

Collema melænum *Ach.*
Market Weighton. H. F. Parsons. S.E.
Sphærophoron coralloides *Pers.*
Ingleborough. W. West. M.W.
Cladonia squamosa *Hoffm...*Goole Moor. H. F. Parsons. S.W.
C. uncialis *Hoffm...*Riccall Common. H. F. Parsons. S.E.
Platysma glaucum *L...*Riccall Common. H. F. Parsons. S.E.

Cetraria aculeata *Fries.* Riccall Common. H. F. Parsons. S.E.

C. Islandica *L.* Holme-on-Spalding-Moor. H. F. Parsons. S.E.

Peltigera polydactyla *Hoffm.*...Whernside. W. West. M.W.

Solorina saccata *L.* ... Warmsworth. H. F. Parsons. S.W.

Parmelia olivacea *L.*, var. prolixa *Ach.*
Whernside. W. West. M.W.

Endocarpon fluviatile *DC.*...Wales Wood. F. A. Lees. S.W.

FUNGI.

Of these we may note the following as recently recorded for the county:—

Agaricus (Amanita) phalloides *Fr.*
Skipwith. H. F. Parsons. S.E.

A. (Lepiota) granulosus *Batsch.*
Skipwith. H. F. Parsons. S.E.

A. (L.) cepæstipes *Sow.* ... ... Ousefleet. T. Birks. S.W.

A. (Tricholoma) sculpturatus *Fr.*
Skipwith. H. F. Parsons. S.E.

A. (T.) luridus *Schæff.* ... Skipwith. H. F. Parsons. S.E.

A. (Clitocybe) phyllophilus *Fr.*
Skipwith. H. F. Parsons. S.E.

A. (Claudopus) variabilis *P.* Cliff Wood. H. F. Parsons. S.E.

A. (Hebeloma) trechisporus *Berk.*
Airedale. J. Mackenzie. ?

A. (Crepidotus) Rubi *Berk.* ... Airedale. J. Mackenzie. ?

A. (Hypholoma) velutinus *P.* Airedale. J. Mackenzie. ?

A. (Psilocybe) fœnisecii *P.*... Airedale. J. Mackenzie. ?

Cortinarius tabularis *Fr.*..Cliff Wood. H. F. Parsons. S.E.

C. cinnamomeus *Fr.* ... Cliff Wood. H. F. Parsons. S.E.

C. collinitus *Fr.* ... ... Skipwith. H. F. Parsons. S.E.

Lactarius cilicioides *Fr.* ... Skipwith. H. F. Parsons. S.E.

Lactarius deliciosus *Fr.* ... Skipwith. H. F. Parsons. S.E.

Cantharellus aurantiacus *Fr.* Airedale. J. Mackenzie. ?

Lentinus lepideus *Fr.*

Piles in river Ouse opposite Goole. H. F. Parsons. S.E.

Lenzites sepiaria *Fr.*

Piles in river Ouse opposite Goole. H. F. Parsons. S.E.

Schizophyllum commune *Fr.*...Selby. H. F. Parsons. M.W.

Polyporus perennis *Fr.* ... Skipwith. H. F. Parsons. S.E.

Craterellus sinuosus *Fr.*...Skipwith. H. F. Parsons. S.E.

Cyathus striatus *Hoffm.*

Bishop's Wood. W. N. Cheesman. M.W.

Sphærobolus stellatus *Tode*...Riccall. H. F. Parsons. S.E.

Crucibulum vulgare *Tul.* ... ... Goole. T. Birks. S.W.

Puccinia betonicæ *DC.* ... ... Shipley. W. West. M.W.

Peziza calycina *Schum.* ... Selby. H. F. Parsons. M.W.

ALGÆ.

Batrachospermum atrum *Harv.*

Barkston. H. F. Parsons. M.W.

Scytonema myochrous *Ag.* ... Arncliffe. W. West. M.W.

Oscillatoria nigra *Vauch.* ... Goole. H. F. Parsons. S.W.

O. contexta *Hassall*... ... ...Wakefield. W. Fowler. S.W.

Pandorina Morum *Fres*...Rawcliffe. H. F. Parsons. S.W.

Volvox globator *L.*... ... ... Rawcliffe. B. Saynor. S.W.

Howden. T. C. Turton. S.E.

Ulva bullosa *Roth*... ... ... Goole. H. F. Parsons. S.W.

Enteromorpha intestinalis *Lk.* Goole. H. F. Parsons. S.W.

Palmella cruenta *Ag.* ... Selby, &c. H. F. Parsons. M.W.

Cylindrospermum catenatum *Ralfs.*

Goole. W. G. Tacey. S.W.

Cosmarium crenatum *Ralfs.* Rawcliffe. H. F. Parsons. S.W.

Cosmarium margaritiferum *Turp.*
Rawcliffe. H. F. Parsons. S.W.

C. bioculatum *Bréb.* ... Rawcliffe. H. F. Parsons. S.W.

Penium Brebissonii *Ralfs* Goole Moor. H. F. Parsons. S.W..

Closterium lunula *Müll.* Burley and Esholt. W. West. M.W.

C. rostratum *Ehr...* ... ... Goole. H. F. Parsons. S.W.

C. moniliferum *Born.* ... ... Holme. H. F. Parsons. S.E.

C. cornu *Ehrb.* ... ... Rawcliffe. H. F. Parsons. S.W.

Pediastrum Ehrenbergii *Corda.*
Rawcliffe. H. F. Parsons. S.W.

Sphærozosma vertebratum *Bréb.*
Rawcliffe. W. Barwell Turner. S.W.

Staurastrum gracile *Ralfs*...Rawcliffe. H. F. Parsons. S.W.

Scenedesmus caudatus ... ... Cracoe. W. West. M.W.

S. acutus *Meyen*... ... ... Rawcliffe. H. F. Parsons. S.W.

S. obtusus *Meyen*... ... ...Rawcliffe. H. F. Parsons. S.W.

S. quadricaudatus *Bréb.* ... Rawcliffe. H. F. Parsons. S.W.

Micrasterias rotata *Ralfs.* ... ... Adel. W. West. M.W.

Tabellaria ventricosa *Kg.* ... ...Adel. W. West. M.W.

Meridion circulare *Ag.* Allerton and Esholt. W. West. M.W.

Diatoma vulgare *Bory*... ... ...Goole. E. Hunter. S.W.

Melosira opercula ... ... Goole. E. Hunter. S.W.

M. nummuloides *Ag.* ... ...Goole. E. Hunter. S.W.

M. varians *Ag.* ... ...Roche Abbey. E. Hunter. S.W.

Nitzschia sigmoidea *Sm.*
Goole and Roche Abbey. E. Hunter. S.W.

N. lanceolata *Sm.* ... ... Roche Abbey. E. Hunter. S.W.

N. sigma *Sm*... ... ... Goole. J. Harrison. S.W.

N. dubia *Sm.* ... ... Goole. J. Harrison. S.W.

Cymatopleura Solea *Sm.*
Goole and Roche Abbey. E. Hunter. S.W.

C. elliptica *Bréb*...Goole and Roche Abbey. E. Hunter. S.W.

Surirella striatula *Turp.* ... ... Goole. J. Harrison. S.W.

Synedra capitata *Ehr*... ... ...Goole. E. Hunter. S.W.

Tryblionella gracilis *Sm*... ... Goole. J. Harrison. S.W.

T. acuminata *Sm.* ... ... Goole. J. Harrison. S.W.

T. scutellum *Sm*... ... ... Goole. J. Harrison. S.W.

T. minuta ... ... Roche Abbey. E. Hunter. S.W.

Cymbella gastroidea *Kg.*
Goole and Roche Abbey. E. Hunter. S.W.

Cocconema Boeckii... ...Roche Abbey. E. Hunter. S.W.

C. parvum *Sm*...Roche Abbey and Goole. E. Hunter. S.W.

Gomphonema acuminatum *Ehr.*
Roche Abbey and Goole. E. Hunter. S.W.

G. capitatum *Ehr*... ... Roche Abbey. E. Hunter. S.W.

Navicula affinis *Ehrenb.* ... ... Goole. J. Harrison. S.W.

N. amphirhynchus.
Goole and Roche Abbey. E. Hunter. S.W.

N. amphisbæna *Born.*
Goole and Roche Abbey. E. Hunter. S.W.

N. rhynchocephala *Kg.*
Goole and Roche Abbey. E. Hunter. S.W.

N. Spencerii *Sm*... ... ... Goole. E. Hunter. S.W.

N. attenuata *Kg*... ... ... Goole. E. Hunter. S.W.

N. cuspidata *Kg.* ... ... Roche Abbey. E. Hunter. S.W.

N. ovalis *Sm.* ... ...Roche Abbey. E. Hunter. S.W.

N. latissima *Greg*... ... Roche Abbey. E. Hunter. S.W.

Pleurosigma lacustre *Sm*...Roche Abbey. E. Hunter. S.W.

P. strigilis *Sm*... Roche Abbey and Goole. E. Hunter. S.W.

Pleurosigma attenuatum *Sm.*
Roche Abbey and Goole. E. Hunter. S.W.

P. acuminatum *Sm.*
Roche Abbey and Goole. E. Hunter. S.W.

P. hippocampus *Grim.*

Pinnularia viridis *Rab.* ... Roche Abbey. E. Hunter. S.W.

P. radiosa *Rab.* ... ... Roche Abbey. E. Hunter. S.W.

Amphora ovalis *Kg...* ...Roche Abbey. E. Hunter. S.W.

A. littoralis *Donk...* ... Roche Abbey. E. Hunter. S.W.

A. hyalina *Kg...* ... ... Goole. E. Hunter. S.W.

Gomphogramma rupestre *A. Br.* Goole. J. Harrison. S.W.

Campylodiscus flexuosus. Roche Abbey. E. Hunter. S.W.

THE 'NATURALIST.'

The 'Naturalist,' the organ of the Yorkshire Naturalists' Union, has during the year given a prominent position to botany, especially cryptogamic botany. Among others may be mentioned the papers by Mr. W. West on "Mosses," by Mr. Geo. Brook, ter., on "Salmon disease in the River Eden" (caused by a fungus, *Achlya*), by Mr. C. P. Hobkirk "On preserving Mosses," by Mr. Thos. Hick on "Sexual Reproduction of Fungi," and by Dr. Parsons on "Flowerless Plants and their Habitats," and the bryological notes by the Rev. J. Fergusson, Messrs. J. Whitehead, E. M. Holmes, J. S. Wesley, F. A. Lees, G. Stabler, &c.

PROBLEMS OF PLANT DISTRIBUTION.

Among the subjects discussed in the pages of the 'Naturalist' by members of the Union have been certain interesting questions bearing on the distribution of plants. One of these questions was—How comes *Elodea canadensis*, an introduced species, of which only the female plant occurs in Britain, and which therefore does not seed, to be found in isolated and elevated ponds far removed from any navigable waters? The explanation offered by the Rev. W. Fowler seems

probable, in some cases at least, viz., that broken fragments of the stem (which readily take root at every joining) may be conveyed from one piece of water to another entangled in the plumage or feet of water birds.

Another problem is—What is the explanation of the occasional reappearance of mountain plants, especially cryptogams, on barren sandy heaths in the plains? The question was raised by the discovery by Mr. F. A. Lees of a well known Arctic and Alpine lichen, the so-called "Iceland Moss" (*Cetraria Islandica*) in pine woods on the greensand near Market Rasen, in North Lincolnshire, since found also in heathy pine woods on alluvial sand at Holme-on-Spalding-Moor in the East Riding, and said by the Rev. W. A. Leighton to occur at King's Lynn. Other examples of a similar nature are *Lycopodium clavatum*, *inundatum* and *alpinum*, formerly found by the Rev. W. Fowler on Crossby Warren, North Lincoln; *Racomitrium canescens* on Santon Warren, North Lincoln, and on Strensall Common near York; *Cetraria aculeata*, *Platysma glaucum* and *Cladonia uncialis* on Riccall Common; *Empetrum nigrum* on Goole Moor, &c. Two explanations may be suggested: such species may be either intruders introduced by some means into the stations which they occupy, or stragglers left behind in the general retreat and able to hold their ground under favorable circumstances against the invading host of new species brought in by a change in physical or climatic conditions. It was thought by the writers that, in the above instances, the second explanation was probably the correct one, and that the plants in question were remnants of a boreal fauna left behind when the ice and cold of the glacial period retreated into more northern regions, The circumstances favorable to such plants possessed in common by sandy heaths and mountains appear to be plenty of fresh air, an atmosphere free from smoke and other impurities derived from the presence of man, humidity, and above all the absence of undue competition of other plants, especially of the herbage plants of pastures, and of the weeds of cultivation; this freedom from competition being secured in one case by the cold and elevation, in the other by the barrenness of the soil.

Instances of introduction by human agency are not common among the cryptogamia, but the following appears to be one:—On the gritstone coping of an old clough or sluice on the River Don at Dykemarsh near Thorne, below high water mark, several mosses occur which have not been found elsewhere in that neighborhood, a low-lying alluvial district, and of these three at least, viz.:—*Racomitrium lanuginosum*, *Ptychomitrium polyphyllum* and *Tortula reflexa* are decidedly of a mountain type, and may have been introduced with the stone—millstone grit—from the high western moors of Yorkshire.

A line in which the observations of members of the Union may be usefully directed is the relation of the flora to the geological and chemical character of the soil. The following is suggested as a classification of soils for botanical purposes:—

1. *Igneo-metamorphic*—granite, basalt, clay slate.
2. *Calcareous*—limestone, marl, chalk.
3. *Argillaceous*—clay, shale.
4. *Arenaceous*—sand, gravel, sandstone, grit.
5. *Peaty.*

with intermediate varieties.

The following is merely an outline of the botanical characteristics of these several soils, the details being left to be filled in and the whole confirmed or refuted by future observations.

1. Igneo-metamorphic.—The representatives of this group in Yorkshire are few, viz.:—the whinstone of Teesdale and the Silurian slate of Craven and the borders of Westmoreland. The phænogamic flora on these rocks is characterized not so much by certain species being constantly or commonly present where they occur and absent where they do not, as by the general richness of the flora which they bear, which frequently comprises many local or rare species, and often exhibits in company plants partial to hard "dysgeogenous" rocky soils, some choosing limestone and

others sandstone rocks, but which elsewhere do not occur together. The botanical characters of granite, basalt and slate are however all different when they have a fair chance of showing themselves, which is not the case with the two former in the North of England. It may perhaps be affirmed that in its botanical characters granite approaches the arenaceous, basalt the calcareous, and slate the argillaceous group of strata.

The cryptogamic flora of the igneo-metamorphic rocks is very rich and varied and contains several abundant and characteristic species.

The following species are chiefly found on rocks of this class:—

Alchemilla alpina.	Hedwigia ciliata.
Asplenium septentrionale.	Parmelia conspersa.
Cryptogramme crispa.	Lecanora ventosa.
Grimmia (several species).	Lecidea geographica.

It is also to be noticed that the plants of alpine regions are frequent on these strata, descending to a comparatively low level. On a calcareous soil, on the other hand, mountain plants do not appear until we reach a considerable elevation, while the ordinary species of lowland districts reach a higher level on limestone than on either of the other kinds of rock.

2. Calcareous.—The flora of calcareous soils is numerous in species and rich in characteristic forms. The special feature of the vegetation of such soils is the closely-matted green carpet of herbage with which the surface is covered. Out of the large number of species more or less peculiar to limestone soils the following may be mentioned :—

Viola hirta.	Geranium lucidum.
Arabis hirsuta.	Genista tinctoria.
Draba verna.	Anthyllis vulneraria.
Reseda lutea.	Spiræa Filipendula.
Helianthemum vulgare.	Poterium sanguisorba.

Pyrus aria.
Saxifraga tridactylites.
Pastinaca sativa.
Galium Mollugo.
Carduus eriophorus.
C. acaulis.
Erigeron acris.
Chlora perfoliata.
Gentiana Amarella.
Thymus Serpyllum.
Origanum vulgare.
Salvia Verbenaca.
Fagus sylvatica.
Taxus baccata.
Orchideæ, various species.
Sclerochloa rigida.
Bromus erectus.

Scolopendrium vulgare.
Eucladium verticillatum.
Didymodon rubellus.
Encalypta vulgaris.
E. streptocarpa.
Ditrichum flexicaule.
Tortula tortuosa.
Neckera crispa.
Anomodon viticulosus.
Hypnum commutatum.
H. filicinum.
Madotheca platyphylla.
Collema various species.
Placodium candicans.
Solorina saccata.
Endocarpon miniatum.
Nostoc commune.

On the other hand a calcareous soil is equally readily recognised by the absence of other plants common and abundant on other soils, especially sand, *e.g.*, the foxglove, the heaths, the bilberry, &c.

Sometimes, as for instance in Teesdale and on Malham Moor, the termination of the limestone rock may be mapped out on the surface almost to a foot by the abrupt and total change which we find in the flora when we cross its boundary.

3. Arenaceous.—The contrast between the flora of sandy and that of limestone soils is very strongly marked as a general rule. Nevertheless there are certain plants usually found on limestone which occur on sandy dunes on the coast, *e.g.*, *Chlora perfoliata*, *Echium vulgare*, *Cynoglossum officinale*, *Orchis pyramidalis*, *Ophrys apifera*, &c. There are other plants which love a dry soil, but are not particular whether it be limestone or sandy, *e.g.*, *Trifolium striatum* and *procumbens*, *Verbascum Thapsus*, &c. The following may be taken as among the more characteristic plants of arenaceous soils :—

Papaver Argemone.
Corydalis claviculata.
Teesdalia nudicaulis.
Spergula arvensis.
Spergularia rubra.
Scleranthus annuus.
Radiola Millegrana.
Sarothamnus scoparius.
Trifolium arvense.
Ornithopus perpusillus.
Peplis Portula.
Montia fontana.
Chærophyllum Anthriscus.
Centaurea Cyanus.
Chrysanthemum segetum.
Hieracium boreale.
Jasione montana.
Erica cinerea.
Digitalis purpurea.
Galeopsis versicolor.
Teucrium Scorodonia.
Anagallis tenella.
Plantago Coronopus.
Rumex Acetosella.
Salix repens.
Juncus bufonius & squarrosus.
Carex arenaria.
Aira flexuosa and præcox.
Holcus mollis.
Weissia viridula.
Dicranella heteromalla.
Polytrichum juniperinum.
P. piliferum.
Pogonatum aloides & nanum.
Bartramia pomiformis.
Brachythecium albicans.
Squamaria saxicola.
Ulva crispa.

The larger Fungi abound especially on sandy soil.

Some of the above which love moist situations are common to sand and peat.

4. Argillaceous.—Clayey soils are cold, wet and backward; the flora is meagre as regards number of species as compared with that of either limestone or sand, and is marked less by the presence of particular plants than by the absence of those characteristic respectively of limestone and sand.

The following plants, though by no means confined to, are nevertheless frequently found on a clay soil:—

Ononis arvensis.
Trifolium medium.
Silaus pratensis.
Scabiosa succisa.
Achillea ptarmica.
Tussilago Farfara.
Picris hieracioides.
Helminthia echioides.
Sonchus arvensis.
Lysimachia nummularia.

Iris Pseudacorus.
Juncus glaucus.
Carex panicea and glauca.
Phragmites communis.
Lolium perenne.
Phascum cuspidatum.
Peziza trechispora.

5. PEATY.—Peat is formed usually on waterlogged sand, or gritstone, less frequently and less perfectly on clay, and very rarely on limestone, as on Ingleborough. It consists almost entirely of decayed semicarbonized remains of plants, especially those of the small shrubby Ericaceæ, rushes and sedges, and the larger mosses, especially species of *Sphagnum* and *Polytrichum*, with a very small proportion of mineral matter, unless mixed with sand. The surface where the soil is peaty is generally covered by brown heathery moorlands; the vegetation is marked by the profusion of individual plants belonging to a relatively small number of species, by the absence or rarity of grasses and of plants with yellow flowers, and by the almost total absence of the pasture plants and of the weeds of cultivation. Hence the peat flora stands in strong contrast to that of the limestone, but graduates into that of the sand. If the drainage of a sandy common or of a gritstone or slaty mountain side be obstructed, its conversion into a peat bog is merely a matter of time. The following are characteristic peat-loving plants.

Drosera, all the species.
Rhamnus Frangula.
Comarum palustre.
Rubus chamæmorus.
Hydrocotyle vulgaris.
Wahlenbergia hederacea.
Vaccinium oxycoccos.
Andromeda polifolia.
Erica Tetralix.
Pinguicula, all the species.
Empetrum nigrum.
Myrica Gale.
Narthecium ossifragum.
Rhynchospora alba.
Carex limosa, C. curta and C. ampullacea.
Eriophorum, all the species.
Molinia cærulea.
Nardus stricta.
Nephrodium spinulosum.
Sphagnum, all the species.
Campylopus, species.
Leucobryum glaucum.
Cladonia, species.
Lecidea decolorans.

Between the above five types of floras various intermediate varieties are met with. The flora of alluvial loam and warp is of a mixed character, corresponding with the composite chemical nature of the soil and the various nature of the rocks from which it was derived. The flora of the boulder clay in places approaches a calcareous type owing to the large number of limestone boulders and débris which it contains.

In tracing out instances bearing upon the problems of plant distribution, the members of the Yorkshire Naturalists' Union may find a wide and promising field for investigation, and though the scientific value of the work of each individual worker among us may be small taken by itself, yet pieced together by a skilful hand the results may possibly in time combine to form a substantial addition to the sum of human knowledge respecting the history of our earth and its vegetation.

CORRECTION.

Since page 37 was printed off, Mr. William West has pointed out that *Gymnomitrium concinnatum* was there erroneously inserted in the list of Hepaticæ, the error having arisen through a misunderstanding arising in the course of correspondence.—Ed.

THE MOSS FLORA OF THE EAST RIDING.

By H. FRANKLIN PARSONS, M.D., F.G.S., Goole,
Secretary of the Botanical Section.

Of the three divisions of Yorkshire the East Riding has been, botanically, by far the least thoroughly investigated. No writer has yet arisen to treat of its flora as that of the North Riding has been dealt with by Mr. Baker, or that of the West Riding in the 'West Yorkshire' of Messrs. Davis and Lees. To supplement this deficiency is a work which may usefully be undertaken by the members of the Yorkshire Naturalists' Union, and as a first instalment towards it the following list of the mosses hitherto ascertained to occur as inhabitants of the region has been compiled. This catalogue however can make no pretension to anything like completeness, many parts of the Riding being as yet quite unexplored, and the remainder with few exceptions worked but very imperfectly. The total number of species hitherto ascertained is 175, about an average number for a lowland district, and almost exactly the same as that (174) given by Mr. Boswell for Oxfordshire.

The Moss flora of the East Riding is far less numerous in species than that of either of the other Ridings, for not only is the East Riding the smallest of the three divisions of Yorkshire, but it presents the least variety of surface and elevation, and its physical conditions are the least favorable to the growth of mosses. It has no mountains, the highest elevation being 815 ft. above the sea, the climate is dry, and the surface in great part consists of highly cultivated arable land. On the Chalk Wolds which stretch through the Riding in a curved direction from the Humber to Flamborough Head, the dry calcareous soil is little adapted to the growth of mosses, and the alluvial and drift peninsula of Holderness to the east has been but little explored. The most favorable localities in the Riding are the belt of undulating limestone country on the western edge of the Wolds, formed by the outcrop of the oolites and lias, and the wet sandy commons and

heathy firwoods on the alluvial sand of the Vale of York. The former tract yields some of the mosses characteristic of hard calcareous strata, *e.g. Neckera crispa*, *Ditrichum flexicaule* and *Encalypta streptocarpa*;* the mud-capped stone walls are favorite habitats for the minute annual species, as *Pottia;* and the tree trunks are covered to a greater extent than in other parts of the district with corticolous mosses and lichens, among which *Cryphæa heteromalla*, a southern form, may be mentioned.

The wet sandy heaths of the Vale of York abound with the larger terrestrial and bog-loving mosses, *e.g.* species of *Sphagnum*, *Dicranum*, *Polytrichum* and *Hypnum*, which in moist shady situations attain a considerable degree of luxuriance; some of the less frequently fertile *Hypnaceæ*, as *H. Schreberi*, *H. splendens* and *H. triquetrum* being occasionally found in that state. Although so little elevated above the sea level it is on these wet moors if anywhere that we must look for any species approaching a northern or mountain type; the rare *Dicranum spurium*, *Breutelia arcuata* and *Tetraplodon angustatus*, recorded many years ago, may be considered to belong to this type, but the *Racomitria* so abundant and characteristic of hilly regions are conspicuous by their absence. *R. canescens* however occurs on Strensall Common in the adjacent part of the North Riding, and also on sandy heaths in Lincolnshire, just across the Humber, so that it is very probable that diligent search may yet discover it in the East Riding, especially as certain mountain Lichens, *e.g. Platysma glaucum*, *Cetraria aculeata* and *islandica*, and *Cladonia uncialis* occur on the sandy heaths of the East Riding.

It may be remarked that with a few exceptions, as the *Polytricha*, *Orthotricha*, *Plagiothecium denticulatum*, *Hypnum cuspidatum*, *H. palustre*, *Tortula convoluta*, &c., the mosses of this as of other lowland districts perfect their fruit in the winter and spring. The mosses of alpine regions, on the other hand, many of them ripen their fruit in the summer.

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* *Anomodon viticulosus* should be looked for in this part of the Riding.

The only authors who have published lists of Mosses in which East Riding stations are quoted are:—

Robert Teesdale—'Supplement to *Plantæ Eboracenses*' in 'Linnean Transactions,' Vol. v., (1800) pp. 36—95.

Richard Spruce—'List of Yorkshire Mosses and Hepaticæ' in the 'Phytologist' for 1845.

Henry Baines—'Yorkshire Flora,' 1840.

The initials after the localities in the list denote the following observers:—

R. T.	Robert Teesdale; loc. cit.
R. S.	R. Spruce, Ph.D., Coneysthorpe, Malton.
M. B. S.	Matthew B. Slater, Malton.
H. F. P.	H. Franklin Parsons, M.D., Goole.

The thanks of the section are due to Dr. Spruce and Mr. Slater for MS. lists of Mosses, and to Mr. H. Boswell for kindly revising this report.

The nomenclature adopted is that of the 'London Catalogue of British Mosses,' compiled by Messrs. C. P. Hobkirk and H. Boswell for the Botanical Locality Record Club.

LIST OF SPECIES.

Sphagnum acutifolium *Ehrh.*
Langwith Moor, R. S. Riccall Common, H. F. P.

S. squarrosum *Pers.*
Langwith Moor, R. S. Cliff Wood, H. F. P.

S. cuspidatum *Ehrh.*
Langwith Moor, R. S. Riccall Common, H. F. P.

S. rigidum *Schr.* var. **compactum** *Brid.* Langwith Moor, R. S.
Riccall and Breighton Commons, H. F. P.

S. contortum *Schultz.* Riccall Common, H. F. P.

S. tenellum *Ehrh.* (= *S. molluscum*, Bruch.)
Langwith and Barmby Moors, R. S.

Sphagnum cymbifolium *Ehrh.*
Langwith Moor, &c., R. S. Riccall Common, H. F. P.
(*S. papillosum* would probably occur.)

Gymnostomum microstomum *Hedw.*
Norton, M. B. S. York and Langwith Moor, R. S.

Weissia viridula *Brid.*
Near Eddlethorpe, M. B. S. Welton, H. F. P. York, R. S.

W. cirrhata *Hedw.* Thatchroofs at Barlby and Lund, H. F. P.

Dicranella cerviculata *Hedw.*
Brough, H. F. P. Langwith Moor, R. S.

D. varia *Hedw.* Kirkham, M.B.S. York, R. S.

D. rufescens *Turn.* York, stubbles, R. S.

D. heteromalla *Hedw.* York, R. S. Riccall, H. F. P.

Dicranum scoparium *L.* Woods towards Ouse and Derwent, R. S. Riccall and Holme, H. F. P.

D. majus *Turn.* Cliff Wood near Selby, H. F. P.

D. palustre *Brid.* Langwith and Barmby Moors, R. S. Cliff Wood and Skipwith, H. F. P.

D. spurium *Hedw.* Houghton and Barmby Moors, R. T.

"Discovered at Barmby Moor by Teesdale about 1770. Figured in Eng. Bot. from his specimens. Re-found by R. S., 5th Nov. 1842, and in fruit July 1843. Grows also on Langwith and Woodhouse Moors," R. S.

Campylopus fragilis *B. & S.* Riccall Common, H. F. P. Heathy woods east of York, R. S.

Seligeria calcarea *Dicks.*
Chalkstones near Bishop Burton, rare, R. T.

Archidium phascoides *Brid.* Langwith Moor (fruit), R. S.

Pleuridium (*Phascum*) **nitidum** *Hedw.*
York, ditch banks, R. S. Beverley, R. T.

P. subulatum *L.* York, sandy situations, R. S.

P. alternifolium *B. & S.* Langwith, &c., frequent, R. S.

Leucobryum glaucum *L.* Langwith and Barmby Moors, R. S. Howsham, M. B. S. Riccall Common and Holme-on-Spalding-Moor, H. F. P.

Sphærangium (*Phascum*) **muticum** *Schreb.* Near York, R. S.

Phascum cuspidatum *Schreb.* Brough, H. F. P.

P. curvicollum *Hedw.* Wolds between Beverley and Market Weighton, R. T.

P. rectum *Sm.* "With the last," R. T.

Systegium crispum *Hedw.* Figham near Beverley, R. T.

Pottia minutula *Schwg.* Kirkham, M. B. S. York, R. S.

P. truncata *L.* York, R. S.

P. intermedia *Turn.* York, gardens, R. S.

P. Heimii *Hedw.* Brough, H. F. P.

P. lanceolata *Dicks.* Near Welham, M. B. S. York, R. S. Welton, H. F. P.

P. cavifolia *Ehrh.* Mud-capped walls, Westow, R. S. Ellerker, H. F. P.

Didymodon rubellus *B. & S.* Welham, M. B. S. York, R. S. Kelfield, N. Cave, H. F. P.

D. luridus *Hornsch.* Blacktoft, H. F. P.

Ditrichum flexicaule *Schwg.* Brantingham Dale and North Cave, H. F. P.

D. homomallum *Hedw.* Langwith, R. S.

Trichostomum tophaceum *Brid.* York, R. S.

Barbula (=Tortula) rigida *Schultz.* Mud-capped walls, Westow, &c., R. S.

B. ambigua *B. & S.* With last, R. S. Near Kirkham, M. B. S. Ellerker, H. F. P.

B. aloides *Koch.* With last, R. S.

B. muralis *L.* Common on walls, R. S. Welton, &c., H. F. P.

B. unguiculata *Dill.* York, &c., R. S. Fulford and Brough, H. F. P. Welham, M. B. S.

Barbula fallax *Hedw.* York, R. S. Brough, H. F. P.

B. rigidula *Dicks.* Broomfleet, H. F. P.

B. convoluta *Hedw.* York, R. S. Brough, H. F. P.

B. subulata *L.* York, R. S. North Duffield, H. F. P.

B. lævipila *Brid.* Trees in York Dale, M. B. S. Drewton and Brough, H. F. P.

B. latifolia *B & S.* Trees by River Derwent, Kirkham, R. S.

B. ruralis *L.* Heslerton, M. B. S. Brough, H. F. P.

B. papillosa *Brid.* Trees, York Dale near Sledmere, M.B.S.

Ceratodon purpureus *L.* Kirkham, M. B. S. Towthorpe, &c., R. S. Riccall and Brough, H. F. P.

Encalypta vulgaris *Hedw.* North Cave, H. F. P. Near Burdale, M. B. S.

Grimmia apocarpa *L.* Wall near Whitewale, M. B. S. Drewton and Brough, H. F. P.

G. pulvinata *Dill.* York, &c., R. S. Ellerker, H. F. P.

Zygodon viridissimus *Dicks.* Near Sledmere, M. B. S. Brough and Holme, H F. P.

Ulota Bruchii *Hornsch.* Trees near Sledmere, M. B. S.

U. crispa *Hedw.* Woods by Ouse and Derwent, R. S.

U. intermedia *Schp.* Cliff Wood, near Selby, H. F. P.

U. phyllantha *Brid.* York.

Orthotrichum saxatile *Brid.* Walls towards Elvington, R. S.

O. cupulatum *Hoffm.* Walls towards Elvington, R. S.

O. affine *Schrad.* Brough, H. F. P.

O. tenellum *Bruch.* York, on trees, scarce, R. S.

O. diaphanum *Schrad.* Alders by Derwent, near Hutton, M. B. S. Brough and Riccall, H. F. P.

O. Lyellii *H. & T.* Trees near Sledmere, M. B. S.

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THE

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Creyke, Ralph, *M.P., Rawcliffe Hall.*
Jowitt, R. Benson, *Leeds.*
Leatham, E. A., *M.A., M.P., Huddersfield.*
Newman, Charles, *F.Z.S., Barnsley.*
Porritt, Geo. T., *F.L.S., Huddersfield.*
Standering, William, *Thorpe Willoughby.*
Starkey, L. R., *J.P., Becca Hall, Leeds.*
Sykes, John, *M.D., Doncaster.*
Wilson, John, *J.P., Seacroft Hall, Leeds.*

HALF-A-GUINEA.

Alexander, William, *M.D., J.P., &c., Halifax.*
Barwick, J. M., *M.A., Low Hall, Yeadon.*
Backhouse, James, *Holgate, York.*
Beaumont, Alfred, *M.E.S., Huddersfield.*
Brigg, John, *F.G.S., Keighley.*
Brown, John, *Ripon.*
Cameron J. S., *M.D., B.Sc., Huddersfield.*
Guest, John, *F.S.A., Rotherham.*
Hobkirk, C. P., *F.L.S., Huddersfield.*
Meade, R. H., *F.R.C.S., Bradford.*
Mitchell, F. S., *M.B.O.U., Clitheroe.*
Moiser, H. R., *F.G.S., Heworth, York.*
Northrop, F., *Millholme, Skipton.*
Ormerod, Thomas, *Brighouse.*
Pearson, Hugh W., *Malton.*
Pocklington, Henry, *F.R.M.S., Leeds.*
Russell, Captain, *Malton.*
Russell, A., *Malton.*
Taylor, John William, *Leeds.*
Tetley, C. F., *Leeds.*
Tew, Thomas William, *J.P., &c., Pontefact.*
Tiddeman, R. H., *M.A., F.G.S., London.*
Whitaker, T. S., *F.R.G.S., Everthorpe, Brough.*
Whitwell, William, *Holgate, York.*

TEN SHILLINGS.

Wharncliffe, Earl of, *Wortley, Sheffield.*
Atkinson, John T., *F.G.S., F.R.M.S., Selby.*
Chaloner, *Rev.* J. W., *Newton Kyme.*
Embleton, T. W., *Methley, Leeds.*
Hindley, A. D., *Liversedge.*
Hindson, Isaac, *Kirkby Lonsdale.*
Kell, A. R., *C.E., Barnsley.*
Sherlock, *Rev.* T. D., *M.A., Ingleton.*

SEVEN SHILLINGS.

Foster, Matthew, *Sancton, Brough.*

FIVE SHILLINGS.

Allen, Alfred H., *F.C.S., Sheffield.*
Andrews, Thomas, *F.C.S., Wortley, Sheffield.*
Bainbridge, Frederick, *Scarborough.*
Barnby, E., *Malton.*
Bedford, James, *Leeds.*
Benn, Thomas, *Leeds.*
Birchall, Edward, *Leeds.*
Braim, John, *Pickering.*
Brigg, M. A., *Leeds.*
Butterell, J. S., *Hull.*
Cash, William, *F.G.S., Halifax.*
Cheesman, W. Norwood, *Selby.*
Clarke, W. Eagle, *M.B.O.U., Leeds.*
Colby, G., *Malton.*
Cordeaux, John, *M.B.O.U., Great Cotes.*
Crebbin, Alfred, *Bradford.*
Davis, Edward, *Leeds.*
Davis, J. W., *F.L.S., F.G.S., &c., Halifax.*
Dennis, George C., *York.*
Dowker, F. W., *Helmsley.*
Drew, Samuel, *D.Sc.Ed., F.R.S.E., Sheffield.*
Eddy, J. Ray, *F.G.S., F.R.M.S., Skipton.*
Fison, F. W., *B.A., F.C.S., Ilkley.*
Fox, James, *Barnsley.*
Gibson, J. H., *M.D., Hull.*
Gomersall, William, *Otterburn, Bell Busk.*
Gray, *Rev.* Edmund, *Sharow, Ripon.*
Hawley, John, *Doncaster.*
Hewetson, H. B., *Leeds.*
Horsfall, John, *F.R.C.S., Leeds.*
Hodgson, William, *Norton, Malton.*
Hutchinson, John, *Barnsley.*
Jagger, William, *Bradford.*
Jessop, *Rev.* William, *M.A., Sheffield.*
Keighley, J. H., *Whitby.*
Lupton, Henry, *M.E.S., Leeds.*
McLandsborough, J., *C.E., F.G.S., Bradford.*
Marshall, John, *Sowerby Bridge.*
Massee, G. E., *Scarborough.*
Mason, Philip B., *F.L.S., Burton-on-Trent.*
Morris, *Mrs.* A. J., *Carleton, Skipton.*
Niven, James C., *Botanic Garden, Hull.*
Parkinson, F., *Market Weighton.*
Prest, William, *Holgate, York.*
Ransome, Prof. Cyril, *M.A., Leeds.*
Rawson, F. G. S., *Thorpe, Halifax.*
Richardson, C. W., *Wakefield.*
Ridgway, J. Ambrose, *F.R.A.S., Beverley.*
Robinson, William, *Sedbergh.*
Roebuck, W. Denison, *Leeds.*
Scharff, Robert, *Bradford and Edinburgh.*
Slater, Matthew B., *Malton.*
Smith, Henry Stooks, *Headingley, Leeds.*
Spence, Charles S., *Armley, Leeds.*
Standen, Robert, *Goosnargh, Preston.*
Sugden, *Rev.* E. H., *B.A., B.Sc., Leeds.*
Thomas, *Rev.* C. E., *Warmsworth.*
Tindall, George, *Doncaster.*
Turner, W. Barwell, *F.C.S., F.R.M.S., Leeds*
Yewdall, Edwin, *Leeds.*

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Mr. Thomas Allis in his report (1844) mentions that a female was shot at Easingwold, and sent to Mr. Chapman of York for preservation, with the message that if it was a Cuckoo he was to stuff it for the person who shot it, but that if it was not a Cuckoo he might keep it. The Rev. F. O. Morris informed Mr. Allis that a female was shot at Rossington near Doncaster, no date being given.

A female in mature plumage was shot from a ship entering the mouth of the Humber in November 1864, as it hovered over the vessel. This specimen came into the possession of Mr. W. W. Boulton, of Beverley, in the flesh, and is recorded by that gentleman in the Zoologist (1865, p. 9415).

Mr. J. E. Harting in his Handbook of British Birds (p. 86) mentions that a mature male was shot at Bridlington on the 6th of July 1865; remarking that it had been hitherto unrecorded.

In the collection of Mr. T. Machin of Bridlington there is a mature male, shot at Bempton by Mr. R. Morris on the 18th of June 1869 (Cordeaux, Birds of the Humber District).

Mr. William Lister of Glaisdale mentions that one was shot at Egton Bridge near Whitby, by the keeper of Mr. Smith, in 1876 or 1877.

Mr. A. Clapham of Scarborough informs me that an adult in his collection was trapped by Lord Londesborough's keeper in the vicinity of Hackness, and that the keeper had another that was taken near Scarborough.

Three specimens have been preserved by Mr. A. Roberts, of Scarborough; these afterwards passed into the collections of Mr. A. Clapham, Mr. E. Tindall, and Mr. Young, gamekeeper. Mr. Roberts informs me that all these birds had been feeding on the large common dew-worms. Two of these last mentioned birds are, no doubt, those recorded by Mr. Clapham.

FALCO ÆSALON *Gmelin.*

Merlin.

A local resident.

This dashing little falcon breeds sparingly on most of our high moorlands, depositing its eggs among the heather and showing a strong predilection for the vicinity of boulders, on which it loves to rest. On the 9th of May 1877 a nest was found on the Ilkley Moors; the old male being first observed sitting on a stone post, which on approach he quitted, and flying low over the heather put the female off her nest. The nest, which contained four eggs, was merely a slight depression lined with and surrounded by burnt heather stems. Mr. A. Roberts of Scarborough informs me that Mr. Hebden of that town was on Seamer Moor one spring, when he observed a Merlin leave a rabbit's burrow, and on inserting his hooked walking stick pulled out a nest of small sticks with six eggs. Mr. H. Smurthwaite of Richmond mentions in Morris's Naturalist (1854, p. 80) that he once heard of a nest being found in the centre of a field of young wheat—a most unusual occurrence.

The Merlin breeds in the following localities:—On the high moors of the Pennine Range it is reported from the neighbourhood of Sheffield (for an interesting and lengthy account of its breeding in this district, from the pen of Mr. Henry Seebohm, consult 'Dresser's Birds of Europe,' part 38), Penistone, Hebden Bridge, Halifax and Haworth, and from the Fells of Langden, Waddington and Grindleton. In Craven and the district known as "The Dales," it nests on the moorlands above Ilkley, Barden, Pateley Bridge, Leyburn, Ripon, Richmond and Barnard Castle. In the north-east it affects the Cleveland Hills and the moors above Whitby and Scarborough. Its numbers are materially reduced in these exposed localities by the use of that cruel instrument the pole-trap.

It is more frequently observed in the autumn and winter months, when it is not so local, and instead of being confined

to the moorlands descends from these elevated localities and visits the more enclosed country, and occasionally the close proximity of large towns.

FALCO TINNUNCULUS *L.*

Kestrel.

A common and generally distributed resident.

In Yorkshire, as in most other counties, the Kestrel is the most numerous and the best known species of the Falconidæ. It is generally distributed, being reported from every district in the county as occurring during some part of the year. As a breeder, it is found in all suitable localities, adapting itself to every variety of situation for the rearing of its progeny. In wooded districts it prefers the deserted nest of a Crow or Magpie; among the fells, a rocky ledge; and on the coast the cliffs; while in the open pastoral country, ruins and hollow trees are occasionally resorted to. All seem to be acceptable, and its absence from them can be accounted for by persecution or the immediate vicinity of some manufacturing centre. There are certain portions of the densely populated districts of the West Riding in which this species is now only observed as a winter visitant, probably from elevated and more exposed localities, though formerly it bred there; and at Spurn Head it is annually noticed as an early autumn migrant.

With regard to the Kestrel's wintering in Yorkshire, Mr. J. E. Harting wrote as follows in the Field for 1872 :—"The Kestrel, which to a certain extent is migratory, has been observed to be a resident in the neighbourhood of Barnsley throughout the year. This district may possibly be the northern limit of its winter haunts; and if this is so, in all probability the Kestrels seen at Barnsley in the winter are not the same birds which spent the summer there, but are new comers from the north, taking the

place of the others which have moved further south." As a resident throughout the year the Kestrel is by no means confined to South Yorkshire, as Mr. Harting suggests, but is generally distributed over the county. Mr. Robert Lee of Thirsk and Mr. James Brigham of Slingsby assure me that in those parts of the North Riding, the Kestrel may be found at all seasons. Further south it occurs commonly around Leeds in the winter. In high and exposed districts, the Kestrel is compelled in hard winters to seek more sheltered quarters, but in milder seasons remains in its old haunts. The evidence given above only tends to prove that the Kestrel is not confined in winter in its distribution, and does not preclude the possibility of such an exchange of birds taking place as Mr. Harting suggests.

Mr. A. Clapham of Scarborough informs me that he has a dwarf specimen of this species shot on Strensall Common, and that about three years ago he saw a recently-killed male, in a York bird-stuffer's shop, that was almost black.

It is greatly to be lamented that such a useful bird should be subject to the rule of wholesale extermination which is applied to all the Hawks, and I once had a conversation with a gamekeeper on this point, in which he quite admitted the harmless character of the bird, but added "it frightens the young pheasants by its hovering,"— a most grievous offence certainly.

FALCO CENCHRIS *Cuvier.*

Lesser Kestrel.

A rare and accidental visitant.

The addition of a new bird to the British avifauna is always viewed by ornithologists with a certain amount of suspicion, and perhaps rightly so. In this instance, however, there is the presence of all that is necessary to place beyond the possibility of a doubt the occurrence of this species in Yorkshire, the bird

having been shot by my friend Mr. John Harrison of Wilstrop Hall, near Green Hammerton, a gentleman well known for his abilities as an ornithologist. He has kindly given me the following particulars of the occurrence :—

About the middle of November 1867, this bird was observed by him for some few days flying about his farm, and his curiosity having been aroused by its diminutive size he at last shot it. Still thinking it to be only a small and curious variety of the common Kestrel, he took it to Mr. D. Graham of York for preservation. Mr. Graham afterwards identified the bird and he persuaded Mr. Harrison to present it to the York museum, where I have seen it. Mr. W. S. Dallas, F.L.S., at that time curator of the museum, informed Mr. Harrison that the specimen was a mature, though apparently not an old male, presenting all the distinctive characters of *Tinnunculus cenchris*, among which the yellowish-white claws were mentioned. Mr. Harrison greatly regrets his inability to supply the exact date, owing to his omission to make a note of it at the time. The bird being undoubtedly a Lesser Kestrel, and thus the authenticity of the occurrence resting on Mr. Harrison's word, the writer, who has had the pleasure of that gentleman's acquaintance for some years, would state that it is quite beyond doubt.

As this species is not included in any standard work on British birds, perhaps a few remarks on its habits and distribution on the continent, from Sharpe and Dresser's 'Birds of Europe,' may not be considered out of place:—

The Lesser Kestrel is spread generally over Southern Europe, migrating in winter into Africa. It is only a rare and occasional visitant in Northern Europe. In Spain it arrives in March and April, but a few remain in Andalucia all the winter. Lord Lilford, in his paper on the ornithology of Spain, says—"The two species of Kestrel (*F. Tinnunculus* and *F. Tinnunculoides* [*Cenchris*]) are, I think, in April and May the commonest birds in Andalucia, with perhaps the exception of the Bee-eater (*Merops apiaster*). Every church-steeple, belfry and tower, every town

and village, every ruin, swarms with them ; I believe I am not at all beyond the mark in saying that I have seen three or four hundred on the wing at the same moment on more than one occasion. I think the Lesser Kestrel is somewhat the most numerous species of the two." It nests in holes in buildings (inhabited or otherwise), trees and rocks, and also in church-steeples ; is a late breeder, some difficulty being experienced in obtaining a complete clutch of eggs by the 16th of May. It also breeds in Styria, Sardinia, Greece, the southern part of Turkey, and the Crimea, where it was observed by Major Irby nesting in river banks.

In France it has been seen in several parts of the country, and has occurred twice in Northern Germany ; is accidental during the migration in Dalmatia, Italy and Sicily, and is rare and accidental in Savoy. In Heligoland it has been obtained by Mr. Gätke.

It feeds on beetles, grasshoppers, and sometimes on small lizards, in the pursuit of which it hovers like the common species.

"We would remark that the white claw is not always a good character whereby to distinguish this species ; for Dresser shot a fine male at Cilli in Styria, which had the claws "light blue," as noted at the time of death. Still, most examples have white claws; and Dr. Tristram tells us that the Arabs distinguish between the two species by means of the claws."

ASTUR PALUMBARIUS *(L.)*

Goshawk.

A rare spring and autumn visitant.

This fine Hawk, formerly one of the falconer's first favourites, has occurred at intervals in the county, generally in the vicinity of the coast, when on the spring and autumn passage. There are,

however, instances recorded of its being obtained in January and in June.

In the year 1825 one killed at Cusworth near Doncaster by the gamekeeper of Mr. W. B. Wrightson, M.P., was mentioned by Mr. Thomas Allis in 1844.

Near Easington in Holderness, a male and female were shot on the 15th of October 1852, by G. S. Gibbs, gamekeeper to Mr. H. Kirk of Stockton-on-Tees, as mentioned in Morris's Naturalist (1853, p. 19) by Mr. D. Graham of York.

At the meeting of the Yorkshire Naturalists' Club on the 2nd of March 1864, Mr. D. Graham of that city exhibited a fine specimen taken near Oswaldkirk by Mr. J. Bower.

Mr. R. Lorrimer shot a fine specimen whilst in pursuit of its prey on Filey Brigg in the first week of October, 1864; the fact being communicated to the Sheffield Daily Telegraph (Oct. 8th, 1864) by Colonel Newman, mention being also made of it in the Zoologist (1864, p. 9327).

On the 29th of August 1875, one was shot at Evecote near Whitby, a note of it being included in the Rural Notes communicated to the Yorkshire Post (14th March 1876) by Mr. Geo. Roberts of Lofthouse.

About the year 1877 a Goshawk was shot at Whitby by Mr. T. Crosby, for whom it was stuffed by Mr. Kitching of that town.

Mr. Matthew Bailey of Flamborough has sent me the particulars of a specimen obtained near Flamborough; from this communication the following account is condensed:—The bird, a fine old female, had frequented the neighbourhood for some weeks, baffling all attempts made to shoot it until the 23rd of January 1877, when it was observed by the gamekeeper of the Rev. Lloyd Greame of Sewerby Hall, to kill a full-grown rabbit, which it had carried about twenty yards when he shot at but missed it. Concealing himself in an adjoining wood the keeper had not long to wait, as the bird soon returned and was shot. This bird, Mr. Bailey informs me, is now in the collection of Sir John Crewe, Bart.

In the collection of Mr. A. Clapham of Scarborough are four Yorkshire specimens, and I am indebted to that gentleman for the following information relating to them :—An adult female, brought to him in the flesh in the spring of 185–, which had been shot by Lady Downe's keeper at Wykeham. A young male in singular "cuckoo" plumage, trapped on the Leckton Moors near Pickering in June 1864 (mistaken for an Iceland Falcon, Zoologist, 1864, p. 9244). A mature female, obtained through Mr. Graham of York, shot in Mowbraydale above Malton; Mr. Clapham has unfortunately misplaced the memorandum of the date. An adult female trapped on a rabbit warren near Harrogate on the 15th of April 1871.

In addition to these Mr. Clapham has examined four or five others obtained in the neighbourhood of Scarborough, and remarks that with one or two exceptions these passed through the hands of Mr. A. Roberts, who has informed me that he has preserved, since the year 1864, no less than five birds of this species, obtained principally from Seamer and Wykeham.

One instance is recorded of the Goshawk nesting in Yorkshire, but the authentication is so slender that no reliance can be placed on it. This appeared in the Zoologist (1863, p. 8678), the recorder being Mr. J. Ranson of Linton-on-Ouse near York, and was as follows :—"This spring the nest of this rare bird was found in some ivy which surrounds an old oak tree which is situate in the boundary hedge of a plantation. I did not see the nest, but the three eggs were of a very pale blue. They were unfortunately broken by one of the possessor's children."

ACCIPITER NISUS *(L.)*
Sparrowhawk.

A common and generally distributed resident.

Next to the Kestrel this species is the most abundant of the hawk tribe, being a generally distributed resident, breeding in almost

every part of the county where there are suitable woodlands. It deposits its eggs in a nest of its own construction, contrary to the statements of some authorities, who aver that a deserted nest is usually selected; this is very rarely the case, and indeed when it happens is an exception to a very general rule. The nest made by this species may be described as a rather flat structure of dead twigs slightly hollowed, the upper edge having generally a little down from the body of the bird adhering to it.

In the collection of Mr. A. Clapham of Scarborough are many interesting varieties of the Sparrowhawk, thirty of which were obtained in Yorkshire.

This species is becoming much scarcer, the result of the family grudge cherished by the gamekeeper, who allows the young to be hatched and then lying in wait secures both parents without trouble, leaving the young to perish miserably in the nest.

MILVUS ICTINUS *(Savigny)*.

Kite.

A rare casual visitant.

There can be no doubt that this fine bird formerly bred in our county, but the necessarily old information on this point is difficult to procure, or at least I have not been fortunate enough to meet with more than one record. This is given by Mr. Thomas Allis who stated (1844) that about twenty years before, one was caught in a trap at Edlington Wood; and that a pair were taken from the nest by Mr. Hugh Reid of that place; none have been seen there since. It may be as well to remark that Mr. Reid was admittedly a first-rate and thoroughly reliable ornithologist.

In the Gentleman's Magazine (1747, p. 23), the Kite is mentioned as a native of the country about Hatfield Chase by Mr. George Stovin, under date of August 31st, 1727.

The veteran naturalist, the late Mr. Charles Waterton of Walton, in Loudon's Mag. Nat. Hist. (1835), remarked that "of all the large wild birds which formerly were so common in this part of Yorkshire, the Heron alone can now be seen. The Kite, the Buzzard, and the Raven have been exterminated long ago by our merciless gamekeepers . . . . . Kites were frequent here in the days of my father; but I, myself, have never seen one near the place."

Dr. Farrar of Barnsley, in a MS. list of the birds of that district, dated 1844, mentioned specimens at Horsecar Wood in 1833, and at Lunn Wood in 1844. The woods adjoin each other and are two miles from Barnsley on its eastern quarter.

In a list of birds prepared for this work by Mr. Wm. Lister of Glaisdale, in Cleveland, for which I am indebted to Mr. Thomas Stephenson of Whitby, that gentleman states that he shot a Kite in Glaisdale in the year 1843 or 1844 and that one was also trapped by Mr. W. Bennison of Egton Bridge and stuffed by the late Mr. Ruddock.

Mr. C. C. Oxley of Ripon informs me that a specimen in his collection was killed in Redcar in 1837.

Mr. Allis stated (1844) that it was of very rare occurrence near Halifax, that Mr. Charles Waterton had observed it near Huddersfield, and that Mr. W. Eddison had seen one specimen, shot near Penistone.

A female was shot near Market Weighton on the 5th of July 1850, as recorded in the Zoologist (1850, p. 2952) by Mr. J. C. Garth.

Mr. James Varley, of Almondbury near Huddersfield, informs me that he saw one on the wing near that place in the summer of 1853.

In the Zoologist (1859, p. 6561), Mr. A. Roberts of Scarborough recorded one, a male in fine feather, shot near that town in the spring of 1859.

About 1864 a Kite shot by Mr. R. Hill near Newholme was stuffed by Mr. Kitching of Whitby.

The Kite has also been obtained or has occurred as follows, but unfortunately without any indication of date.

Mr. P. Inchbald mentioned it as occurring rarely near Halifax (Huddersfield catalogue, 1859).

Mr. A. Roberts of Scarborough informs me that four specimens have passed through his hands for preservation, all obtained near Seamer; one of these is now in the collection of Mr. A. Clapham, and another in that of Mr. John Young. The last was obtained three or four years before 1879.

One was preserved by Mr. R. Lee which had been shot near Thirkleby, about three miles from Thirsk. No date given but since 1867.

The reports of the occurrence of this bird should be received with caution, as my experience is that in the mountainous portions of the county the Buzzard is usually known by the names of Kite or Glead, and this is also the case in North Wales, where the former synonym applies.

NAUCLERUS FURCATUS *(L.)*

Swallow-tailed Kite.

A rare and accidental visitant.

Three specimens of this wanderer from the 'Far West' are reported to have visited our county. One of these, an undoubted occurrence, has passed into history, and I cannot do better than quote the particulars of it from Professor Newton's admirable edition of 'Yarrell's British Birds':—

"In the extracts from the Minute Book of the Linnean Society printed at the end of the Fourteenth volume of its 'Transactions' (p. 583) under date "Nov. 4, 1823" there is a notice of a communication by Dr. Sims mentioning, on the authority of the late Mr. Fothergill of Carr End near Arkrigg [Askrigg] in Yorkshire, the

occurrence of a Swallow-tailed Kite near Hawes in Wensleydale in that county. The Editor has been favoured by a son of the gentleman last named—Mr. William Fothergill of Darlington, with a complete corroboration of this story in the shape of the original note in the handwriting of his father. This note states that "on the 6th of September 1805, during a tremendous thunder-storm a bird, of which a correct description follows, was observed flying about in Shaw Gill, near Simonstone, and alighting upon a tree was knocked down by a stick thrown at it, which however did not prove fatal, as I saw it alive and had an opportunity of carefully examining it four days after it was taken." A very accurate description of the specimen . . . . . follows, and the note proceeds thus—the latter portion having to all appearance been written subsequently:—"The bird was kept to the 27th, and then made its escape, by the door of the room being left open while showing [it] to some company. At first it arose high in the air, but being violently attacked by a party of Rooks, it alighted in the tree in which it was first taken. When its keeper approached, it took a lofty flight towards the south, as far as the eye could follow, and has not since been heard of.—[Signed] W. FOTHERGILL. Sepr. 30th. 1805." The Editor has further been kindly shewn by his obliging correspondent a letter addressed to his father the following year by his nephew, the late Mr. Charles Fothergill of York, an ardent Naturalist, who says, "I have also proved, what I expected would be the case, that the *Falco* taken at Hardraw Scarr was the Swallow-tailed Falcon or *Falco furcatus* of Linnæus." Unaccountable then as the fact may be, it rests on the evidence of perfectly competent witnesses and there is accordingly no room for doubt in this case."

The second specimen is in the collection of Mr. A. Clapham of Scarborough, who informs me that he purchased it from Mr. Graham of York, to whom it had been sold by Mr. Jonathan Taylor, a schoolmaster at Harum near Helmsley. Mr. Clapham made careful enquiries before purchasing this bird and communicated with Mr. Taylor, the following being a copy of that person's reply.

"Harum, 13th May 1872. In referring to my old book of memoranda is the following:—May 25th 1859, Little George (the name by which this keeper was always known at Duncombe Park), brought me to-day a Swallow-tailed Kite, shot by himself in the Quarry Bank, near Helmsley, on the estate of the Earl of Feversham. [signed] JONATHAN TAYLOR." Mr. Clapham had also other letters from Mr. Taylor bearing out his statements, and in one he greatly regrets having sold the bird to Mr. Graham for a few shillings, not knowing its value at that time. Confirmatory evidence bearing out this statement has reached me from a totally independent source. Mr. Thomas Stephenson of Whitby, who has kindly interested himself on my behalf in procuring information relating to north-eastern Yorkshire, tells me that Mr. Wm. Lister and his brother observed about this same year a Swallow-tailed Kite at Glaisdale. Mr. Lister is an ornithologist and has no hesitation as to the identification of the bird, which he thus describes: "black and white and the tail much more forked than that of the common Kite," which he knows well.

The third example of this rare bird attributed to Yorkshire is in the fine collection of Mr. Alfred Beaumont of Huddersfield, and is supposed to have been shot in Bolton Woods some forty or fifty years ago. For many years it formed part of the collection of a Brighouse or Halifax gentleman, on whose death the collection came under the hammer, when the bird passed into the possession of its present owner; the price paid for it being £11. This is all the information I have been able to obtain, but Mr. Beaumont assures me that he is perfectly satisfied as to its validity as a Yorkshire specimen; a satisfaction in which the writer is unable to participate, from the extremely vague character of the evidence adduced.

BUTEO VULGARIS *Leach.*
Common Buzzard.

A doubtful resident; a casual autumn and winter visitant.

This species, formerly one of the most abundant of the larger

British birds, is now exceedingly rare, having gradually become scarcer since the gun came into general use.

About thirty years ago it bred at Bishop's Wood near Selby, three pairs frequenting the wood annually. This information was given to me by the late keeper, Mr. Wm. Harland, who used to procure the young birds when a boy. At about the same time it was abundant among the fells of Upper Wharfedale, where the young and eggs were by no means rare. It has nested near the summit of Great Whernside, from whence its eggs have been procured; and in 1863 two young birds were obtained from a nest in the vicinity of Kilnsey in the same valley.

Mr. H. Smurthwaite, writing in Morris' Naturalist (1853, p. 108) recorded its breeding near Sedbergh in the summer of 1852; and the same gentleman in the same journal mentions its nesting in Red Crag, Richmond, where five young were reared, a most unusual number, for, so far as my experience goes, two is the most frequent number of eggs, but I have known of three being found occasionally.

I have little doubt that a pair or two even now nest in the unfrequented mountainous districts of north-west Yorkshire where they are still able to pass undetected and undisturbed. I have authentic evidence of its nesting here in 1878, when the eggs were taken and the old birds shot at, in the belief that they were Golden Eagles. I am not at liberty to mention the exact locality, it being the wish of my informant that it be withheld in the interest of the birds. Mr. James Varley observed a pair flying in circles over Gordale Scar on the 6th of May 1877; Mr. F. S. Mitchell of Clitheroe informs me that it is shot almost every year on the Fells near Slaidburn, although he has never heard of its breeding; and Captain Wade Dalton, of Hawxwell Hall near Bedale, tells me that it occurs in the winter on the moors but is by no means common. No doubt at this season it descends from the higher and more exposed fells lying to the westward.

Mr. Charles Waterton (Loudon's Mag., Aug. 1835, viii. 453)

regretted the absence of this bird from Walton Park, and said, "In 1813 I had my last sight of the Buzzard."

As a partial migrant the Buzzard is most frequently met with in the autumn, and although it has been observed in most parts of the county, especially near the coast, it is far from usual in its occurrence, more particularly during the last few years. Mr. W. W. Boulton of Beverley tells me that it is now more rare than its congeners the Rough-legged and the Honey Buzzards, and this really appears to be the case; for a similar remark is made by Mr. Joseph Lucas in his remarks on the Rough-legged species. Mr. Thomas Lister of Barnsley remarks on one shot near Barnsley in 1876, that it had not been observed in that district for forty years.

Dr. Farrar mentioned one killed in Woolley Park in November 1834; in 1840 Mr. H. Denny of Leeds cited it as rather rare at Halifax and North Deighton; Mr. Heppenstall of Sheffield in 1843 recorded it as formerly common but then quite rare; Mr. Thomas Allis mentioned it as frequent near Doncaster, Huddersfield and Sheffield; a male was shot at Bilham near Doncaster, Sept. 1846 (Mr. W. Talbot); I am informed by Captain E. H. Turton, that one was shot on Roxby Moor in Cleveland in the year 1847; and another at Cowesby near Thirsk; in 1856 Mr. H. Smurthwaite of Richmond reported it to be still not uncommon in some parts of Yorkshire; one was killed at upper Helmsley in 1860; at Fryup in Cleveland one was shot in 1864; Mr. James Aspdin recorded an old male shot near Hawes in January 1865; and Mr. Joseph Lucas stated that "Buzzards are occasionally seen on the Nidderdale Moors. At Christmas 1868, Mr. Yorke's keepers trapped a Common Buzzard on Gouthwaite Moor." Mr. R. Richardson of Beverley informs me of a female shot at Bishop Burton on the 3rd of December, 1868, and another female, shot at Kipling Cotes on the 17th September, 1869; on September the 18th, 1869, one was shot at Market Weighton; one was seen on Moscar Moor on the 22nd of October, 1869; on the 21st of February, 1870, a female was shot near Cocklington; in

1873 one was shot at Wass in the North Riding; Mr. J. T. Calvert of Keighley informs me that one was shot at that place in 1875; one was shot at Thorpe Basset in 1875; another on the Moors near Penistone on the 23rd of October 1875; one was trapped on a Woodcock at Scarborough on the 20th of March 1876; Mr. R. Richardson informs me that a female was trapped at Holme-on-Spalding-Moor on the 26th of February, 1876; one was trapped near York in January 1877, and in November one near Thirsk (Mr. R. Lee). Mr. A. Roberts informs me that he has had many shot in the neighbourhood of Scarborough, and Mr. Wm. Lister that it had been killed at Lyton on the Mulgrave estate.

BUTEO LAGOPUS *Gmelin.*
Rough-legged Buzzard.

An uncommon autumn and winter visitant.

This bird occurs almost annually in eastern Yorkshire as an autumn migrant, usually in the month of October, and varies very considerably in its numbers; some years being very scarce or unnoticed, whilst in others great flights visit us, when the birds are observed in all parts of the county during the autumn and winter. The first flight of which mention is made, took place in the winter of 1839-40, and the last in that of 1876-77, both affording the most marked evidence of these irregular and inexplicable occurrences. I examined several specimens obtained during 1876-77, all of which were in immature plumage, and with one exception light tawny-colored birds with the upper parts mottled with lightish brown, whilst the breast, belly and thighs were striped longitudinally with the same tint; the irides were pale straw yellow. The exceptional bird was of generally uniform dark-brown colour. On going through the numerous instances of occurrence in this county, I can only find mention made of one mature bird; this was shot at Patrington in January 1877 and described as an old male. The occurrence of this species in mature plumage in the British Isles is of the greatest rarity.

It is rather extraordinary, considering the numerous occasions on which it has occurred in this county, in Lincolnshire and in Norfolk, that Mr. Hancock in his catalogue of the birds of Northumberland and Durham has only three captures of this species to record for both counties.

Unlikely as it may appear, it nevertheless seems to be an accepted fact that this species bred in former years at Hackness near Scarborough. The following account, taken from Mr. A. G. More's useful paper on the distribution of birds in Great Britain during the nesting season, which appeared in the Ibis for 1865, includes all the particulars obtainable relating to this most interesting occurrence:—

"A single pair bred for several years in succession at Hackness, where they appeared as summer visitors.

"Mr. Alwin S. Bell of Scarborough has kindly furnished the following particulars:—Mr. John Smith, who was gamekeeper for twenty years on the estate of Sir J. V. B. Johnstone, remembers the Rough-legged Buzzard perfectly well. There was no mistake as to the species, as they were feathered right down to the toe ends. They used to breed, year after year, on the ground amongst the heather, in the moor-dells near Ash Hay Gill, Whisperdale, about three miles from Hackness. One pair only bred every year during most of the time that Mr. Smith was keeper, twenty-four years ago. They were not seen except in the breeding season. Mr. Smith has himself shot them from the nest, and remembers that they sometimes had young.

"Mr. Williamson, the curator of the museum at Scarborough, confirms this statement, and remembers a male Rough-legged Buzzard being trapped by the keeper and brought alive to Scarborough. This bird escaped, but soon afterwards its mate was shot; and in the following spring the same male returned, with another partner, when both were taken, and on the male was found distinctly the marks inflicted by the trap."

Wishing to ascertain whether the bird had been known to breed in this locality since the time spoken of by Mr. Williamson, I communicated with his successor in the curatorship of the

museum, Mr. Alfred Roberts, to whom I have been much indebted for information during the progress of this work, and who replied to my inquiries that the birds had not been known to breed since the date of Mr. Williamson's record.

During the autumn, winter and spring this species has occurred at one time or another in all parts of the county, being especially numerous in the vicinity of the coast. The recorded and communicated instances of its occurrence are so very numerous and the bird being regarded as an annual visitant an enumeration of the localities is quite unnecessary.

PERNIS APIVORUS (*L.*)

Honey Buzzard.

An uncommon spring and autumn migrant.

Mr. Hancock in his catalogue of birds of Northumberland and Durham considers this to be one of the commonest larger birds of prey, whilst Mr. Cordeaux in his Birds of the Humber District says he has not met with a Lincolnshire-killed specimen. In Yorkshire it has been frequently recorded in the eastern portion of the county in the spring and autumn, when on its migratory course.

It has no doubt bred in the county, for Dr. Farrar informed Mr. Allis that a pair fixed their quarters in Wharncliffe Wood in 1833, one of them being shot; and Mr. W. W. Boulton of Beverley, in a letter to me, speaking of two young birds that formerly constituted part of his fine collection, says, "I am morally certain they were bred there. The extremely immature plumage of the young birds—besides the fact that others were seen by the keeper who sent me mine—attest the truth of my supposition. From what the keeper told me, I have not the slightest doubt the birds were bred amid the wooded margins of the Hornsea mere."

The late Mr. H. Denny mentioned one as having been obtained at Harewood, near Leeds, in 1828, which passed into the collection of Dr. Leach.

Mr. Heppenstall, writing in 1843, stated that six specimens had occurred near Sheffield.

In 1844 Mr. Allis mentioned it as having occurred two or three times in the East Riding, and as rare in the West Riding, except near Doncaster, where it was met with not unfrequently.

The curious capture of one at Bridlington in 1849 was communicated to the Zoologist (1849, p. 2649) by Dr. C. R. Bree. It was flapping against a window at twelve o'clock at night, and making such a noise that the person got up, opened the window, and captured it.

One in the collection of Captain E. Turton was obtained at Roxby, in the North Riding, in the year 1849.

In Morris's Naturalist (1852, p. 185) one is recorded from the neighborhood of Bridlington in May 1850, which was purchased by Mr. T. Allis.

According to Morris's British Birds (1851) it has occurred in the neighbourhood of Doncaster; and one shot near York is preserved in the British Museum.

Mr. A. Roberts of Scarborough records (Zoologist, 1855, p. 4761) the occurrence of a fine female at Flamborough on the 2nd of June, 1855, the stomach of which was found to be full of worms and slugs.

One occurred near Ackworth in the autumn of 1856, as mentioned in Morris's Naturalist (1857, p. 198) by Mr. C. E. Smith.

In September 1858, one was shot by a gamekeeper in Chevet Park near Wakefield, while in the act of devouring a wasp's nest.

Mr. W. W. Boulton of Beverley, in the Zoologist (1865, pp. 9417 and 18) records the addition to his collection of a pair of immature males shot in the neighbourhood of that town on the 22nd and 26th of September, 1864.

On the 5th of October, 1866, a fine old male was shot at

Wawne near Beverley and forwarded to Mr. W. W. Boulton, who recorded it in the Zoologist (1867, p. 545).

Mr. F. G. S. Rawson of Halifax informs me that one was obtained on Blackston Edge Moor, on the 8th of October, 1866.

One occurred at Yarm in May, 1868, as communicated to the Zoologist (1868, p. 1374) by Mr. Wm. Lister, junr., with the remark that it had occurred there before.

I am informed by Mr. R. Richardson of Beverley that one was obtained at Newbiggin on the 27th of August, 1868.

Mr. A. Roberts of Scarborough informs me that a dark variety was shot at Seamer, in the spring of 1869, and that a dove-colored specimen had been obtained on the South Sands, Scarborough.

Mr. Thomas Stephenson of Whitby informs me that Mr. Kitching of that town had some time ago a fine living specimen of the Honey Buzzard in his possession, which had been caught at sea about four miles off Whitby, whilst in pursuit of a pigeon which took refuge on board a fishing coble. The Buzzard hovered round the coble and was eventually knocked down into the water and captured.

One is recorded in the Naturalist (1875, p. 24) as having been shot at Storthes Hall near Huddersfield, 28th May, 1874. Its crop contained a young bird and egg shells of the Missel Thrush.

According to Mr. G. Edson one occurred at Sledmere in September 1874.

Mr. Matthew Bailey of Flamborough informs me that 'a real old male' was shot by James Marr, head gamekeeper to Mrs. Cottrell Dormer, of Dykes House, Flamborough, on Whit-Monday, 1875.

Mr. T. Lister of Barnsley informs me that one was obtained on Langsett Moor in the autumn of the same year.

One in the collection of the Yorkshire Philosophical Society was obtained at Kilburn in the year 1877.

Two specimens occurred at Londesborough in the autumn of the year 1879. A beautifully marked specimen

trapped by Mr. Young on the 15th of September, weighed 3 lbs. and 2 ozs. The other was procured soon after, but unfortunately no note was made of the date. For this information I am indebted to Mr. John Harrison of Wilstrop Hall and Mr. Joseph Ripley of York.

CIRCUS ÆRUGINOSUS (*L.*)

Marsh Harrier.

A rare casual visitor.

Formerly this bird bred on the 'wastes' around Doncaster and in the East Riding, but—compelled to retreat before the steady march of agriculture and the misplaced zeal of the game-preserver—it has long since ceased to do so, and can now only be regarded as an extremely rare visitor to the county.

Under the old name of 'Moor Buzzard' the following mention is made of this species in Miller's History of Doncaster, published in 1804. "This bird is very common in our morasses, moors, &c., and is one of the most voracious of its tribe. It is a well attested fact that nine, nearly full grown, moor game (*Tetrix* and *Rubra*) were taken out of a nest one day and eight the next morning."

Mr. Arthur Strickland, who resided at Bridlington Quay, informed Mr. Allis in 1844 that the total destruction of all the large beds of whins in his neighbourhood had nearly banished this bird, which occasionally bred there formerly; stating that he had never found young birds from that locality without the yellow caul.

Mr. Alfred Roberts of Scarborough informs me that he had three eggs of the Marsh Harrier brought to him many years ago that had been taken by a person named Elliot on May Moss, a swampy place on the moors between Scarborough and Whitby;

the nest being composed of heather, grass and rushes.

In 1808 the species is cited by Graves as inhabiting Cleveland; Mr. Leyland in 1828 mentions it in his list of Halifax birds; Mr. Allis in 1844 gives it as sometimes visiting the moors near Sheffield, rarely near Hebden Bridge, and not uncommon near Doncaster, Mr. H. Reid informing him that 14 years before that date seven or eight were obtained in a season from Hatfield Moor and Car Side.

In October 1849 one was shot at Wassand near Hornsea, by the keeper, in the presence of Sir Wm. Milner, Bart.; recorded by Dr. B. R. Morris in the Zoologist (1850, p. 2649).

A fine female is said by Mr. Wm. Talbot, in his list of Wakefield birds, to have been found in a rabbit trap at Cudworth near Barnsley in April 1869; this he saw in the flesh.

On the 13th of October, 1871, a young male was shot near Beverley, and recorded in the Zoologist (1871, p. 2847) by Mr. W. W. Boulton, with the remark that it was "quite a rare and unlooked for occurrence."

Mr. A. Clapham of Scarborough informs me that he possesses an almost black specimen, shot at Wassand in February or March, 1872, and that he saw another from the same place, a splendid bird, black with a rufous head.

In September 1877 one was shot near Pocklington (Naturalist, 1878, p. 112).

CIRCUS CYANEUS (*L.*)

Hen Harrier.

A casual visitant.

This species is now only a very occasional visitor to our extensive moors and unenclosed lands; although we can hardly doubt that the Hen Harrier formerly bred annually on the extensive and wide spreading tracts of suitable country to be

found in the North and West Ridings, yet it is to be regretted that the ornithological records of our county relating to that period are exceedingly meagre and scarce, the following being all the information I have been able to obtain on the nidification of the species.

As to its formerly nesting near Scarborough Mr. P. Hawkridge of that place, writing in Neville Wood's Naturalist (1838, p. 106) under date of August 7, 1837, says: "Specimens are repeatedly shot on the moors near Scarborough. They also breed there." In 1844, as Mr. Thomas Allis was informed by Messrs. J. & W. Tuke, it still bred on Hambleton and in the neighborhood of Pickering. Mr. Wm. H. Raw of Lealholm in Cleveland, in speaking of a pair in his possession, says: "They were shot about 30 years since [about 1850] by my father, Robert Raw, near Danby Beacon, where they had a nest. I have heard my father say that at that time scarcely a year passed without a breed of these Harriers somewhere on the Danby Moors; but of late years they have been very scarce and rarely seen." Mr. R. Standen of Goosnargh near Preston informs me that a nest supposed to have been of this species was found in Langden Fell, on the borders of Lancashire, by a shepherd lad; it contained three bluish-white eggs. The lad described both the nest and the bird pretty plainly.

Writing in 1828 Mr. Leyland mentioned it as rare in the Halifax district; and in 1840 Mr. H. Denny of Leeds described it as rare and mentioned Halifax, Thorp Arch and Selby as localities in which it had occurred.

In 1844 Mr. Allis reported it as not uncommon on the low grounds and carrs near Doncaster, but seldom met with in the East Riding, rare near Sheffield, and seen not unfrequently near Huddersfield.

Mr. W. M. Morris mentioned in the Naturalist (1853, p. 60) one killed near Stockton-on-Tees on the 11th of October, 1852.

Mr. T. Lister of Barnsley informs me that one was shot in December 1875 on the moors beyond Penistone.

On the 30th of November 1876 Mr. James Varley of Huddersfield saw a female at Hebden Bridge.

An immature specimen was obtained near Filey early in February 1877, its capture being communicated to the Zoologist (1877, p. 179) by the Rev. J. G. Tuck.

Mr. James Backhouse of York mentions (Friends' Nat. Hist. Journal, 1877, p. 56) that he saw one near that city about March 12th, and another at Askham Bog on the 19th of the same month, 1877.

Mr. R. Standen informs me that one was seen near the Sykes, Bowland, in May 1877.

A young male in rich immature plumage, now in my possession, was shot on the warren at Kilnsea in Holderness on the 16th of October of the year 1879, and was forwarded to me on the following day.

In addition to the above, Mr. R. Lee of Thirsk informs me that it has been shot at Knapton; and Mr. A. Roberts of Scarborough says it sometimes occurs on the moors near that town. Three pairs have come under the notice of Mr. G. Page of Guisborough during the past 15 years, all obtained within ten miles of that town. One in the possession of Mr. Wm. Lister was shot on Egton Moor by Mr. Bennison.

CIRCUS CINERACEUS (*Montagu*).

Montagu's Harrier.

A casual visitant.

This species appears formerly to have been more widely distributed in this county than either of its congeners, the Marsh and the Hen Harriers, and it also was the last of the genus to depart from its former haunts. Even yet it may occasionally breed on some of the less frequented moors, as, indeed, we have information of its doing, so recently as 1871. The species can now, however, only be regarded as a casual visitor to the county, occurring most probably in the autumn, at which season it is ob-

served in limited numbers as an annual migrant in the eastern counties.

Mr. Thomas Allis informed the British Association in 1844 that Mr. Arthur Strickland of Bridlington had procured this species in all stages of plumage from the nest, though it was seldom then met with; and that Mr. John Heppenstall had a male from Thorne Moor, where it bred, placing its nest among the long heath which grew to a considerable height on the borders of the moist places. It is also fair to presume that it formerly bred in the carrs near Doncaster, where Mr. Allis mentioned that two pairs had been shot in 1835.

Mr. John Braim records in Morris's Naturalist (1855, p. 214) that in July 1854, a male was shot on the moors near Whitby, the female being seen, and three eggs taken from the nest.

Mr. A. Clapham of Scarborough tells me that some years ago—unfortunately he cannot give the year—Mr. Lloyd's keeper brought to him in June a pair of these Harriers in the flesh, along with their two young birds in down, and some addled eggs, obtained at Crosscliffe, Hackness, near Scarborough. The plumage of both the old birds was peculiar, being of a "dull slaty mixed color." The two sexes were very similar in plumage and size; the female being so diminutive that were it not for the fact that she was procured at the same time as her mate and the young, she might have been mistaken for a male bird.

I am indebted to Mr. E. P. P. Butterfield of Wilsden for information relating to a pair of Montagu's Harriers and their young, now in the possession of Mr. Dalton, which were obtained from a nest on Barden Moor, in Wharfedale, on the 12th of July, 1860. The nest was placed somewhere on the site now occupied by the reservoir of the Bradford Corporation.

Mr. J. H. Gurney, jun., informs me, on the authority of Mr. Jones of Bridlington Quay, that a pair and their nestling young were captured near Bridlington in the year 1871.

As a casual visitant and autumn migrant, I have been able to obtain very little information of its occurrence, the following

being all that has been placed on record or communicated to me :—

Mr. Allis (1844) reported, on the authority of Mr. Hugh Reid of Doncaster, that one in the possession of the Rev. R. Lucas, of Edith Weston, was shot ten years before ; also that Mr. H. Chapman of York had had the bird, but it was of rare occurrence.

Mr. John Grey recorded in the Zoologist (1845, p. 1054) a pair shot near Guisborough in 1845, which passed into the collection of Mr. C. Newby of Stockton-on-Tees.

An adult male in the collection of Mr. A. Clapham of Scarborough was killed in a quarry near Garforth at Christmas, 1846 ; and that gentleman also informs me that he has had sent him several specimens by the gamekeeper at Skipwith Manor, near York.

One shot at Escrick, about the 15th of October, 1849, was recorded in the Zoologist (1850, p. 2649) by Dr. Morris.

A fine old male was shot near Brompton, Northallerton, in the year 1856 (D. Graham, Zoologist, 1856, p. 5251).

On the 19th of June, 1867, an adult female was shot on Kilnsea Warren, by John Clubley, and preserved by Mr. Richardson of Beverley.

About the same year, one shot at Littlebeck was stuffed by Mr. Kitching of Whitby.

One in the possession of Mr. George Brook, ter., was shot in Rash Gill, near the head of Swaledale, in the spring of 1870.

Mr. Jno. Cordeaux mentions in his Birds of the Humber District that "Two immature females in Mr. Boulton's collection were shot of late years in Holderness."

On the 14th of May, 1875, one was shot at Acaster Malbis near York, and recorded in the Naturalist (1875, p. 80).

Mr. A. Roberts of Scarborough preserved a fine male shot on Seamer Moor in April of the present year (1880).

ACCIPITRES. *STRIGIDÆ.*

STRIX ALUCO *L.*

Tawny Owl.

A generally distributed resident.

This bird, perhaps the most abundant of the Yorkshire Strigidæ, is to be found in those portions of the county where there are woods, or small though dense fir plantations. It is included as a resident in most of the reports sent to me from various parts of the county, and whilst it seems to be especially abundant in the Cleveland district and the neighborhood of Slingsby, it is mentioned as being only of occasional occurrence in the Halifax and Keighley districts and is rare around Sheffield and Huddersfield. Most of the reports mention it as gradually diminishing in numbers, and express regret that so truly useful a species should be subject to persecution.

This owl nests in a variety of situations; the deserted nest of a crow or magpie being perhaps the most generally selected, whilst hollow trees and ivy are not uncommonly resorted to. Mention is made of a hole in a quarry being used near Scarborough, in which was found one young bird, one egg and two dead rabbits. I have myself found the eggs of this species laid in a depression in the hay in a barn. Mr. James Carter of Masham informs me that he found on the 17th of March, 1877, five eggs in a nest, a most unusual number. Writing in the Zoologist (1851, p. 159), Mr. S. Hannaford, junr., of Kiveton Park, relates that a pair of these birds kept their young well supplied with young rabbits, which they hung, one at a time, on a branch of a tree near the nest, so as to be within the reach of their young.

A curious anecdote of a Tawny Owl laying its first egg after being nearly twenty years in captivity is related in the Zoologist (1855, p. 4761) by Mr. Henry Spurr of Scarborough.

NYCTALA TENGMALMI (*J. F. Gmelin*).

Tengmalm's Owl.

A rare and accidental visitant.

In his edition of Yarrell's Birds, Professor Newton enumerates fourteen instances of the visits of this little owl to England, two being to Yorkshire (Hunmanby and Flamborough); to these I am able to add a third occurrence, whichhas been hitherto unreported.

About the year 1847 an owl of this species was shot in the woods at Hunmanby, by Admiral Mitford's keeper, its occurrence remaining unknown until 1849, when it came under the notice of the late David Graham of York. The fact was afterwards recorded in the Zoologist (1849, p. 2649) by Dr. Morris.

Mr. W. W. Boulton, of Beverley, and Mr. M. Bailey, of Flamborough, have kindly given me the information relating to the second Yorkshire occurrence, of which the following is a résumé:—On the 1st of October, 1863, after a severe gale from the N.E., a splendid specimen, in exquisite plumage, and supposed from its size to be a mature female, was captured at Flamborough in the day time by a man who ran it down in a field, the bird being dazzled by the light and rendered almost helpless. It was taken to Mr. Bailey for preservation, and now forms part of the collection of Mr. John Stephenson, of Beverley.

The third example of this interesting little owl is now in the possession of Mr. William Lister of Glaisdale. It was shot at Egton, near Whitby, in the year 1872, by a son of Mr. W. Bennison, gamekeeper. Like the other specimens, this also occurred in the immediate vicinity of the coast, and I believe has so far been unrecorded.

NYCTALA ACADICA (*Gmelin*).

Acadian Owl.

An accidental visitant.

The only information obtainable relating to the supposed occurrence of this common North American species in Europe * is contained in the subjoined communication to the Zoologist (1860, p. 7104) from Sir Wm. M. E. Milner. It should be clearly understood that the mere fact of my including this and other species in my work is not in any way intended to claim for them a place on the British list; the information relating to such occurrences being simply given for what it may be worth.

Sir Wm. Milner's words are:—"I do not recollect ever mentioning to you for insertion in the Zoologist an account of my having received from a young clergyman, a son of Mr. Bury, who has the church at Osberton (my brother-in-law Mr. Foljambe's place) who, knowing I had a very fine collection of British birds, sent me a small owl in a very curious case, which was shot in the East Riding of Yorkshire, not far from Beverley, by a keeper, a brother of Sir Thomas Whichcote's keeper, of Aswarbey, Lincolnshire. He sent this bird to his brother, who gave it to Mr. Bury, from whom I received it. I found out afterwards from looking at Audubon's Birds of America, that it was the Sparrow Owl (*Strix acadica*), which is rather common in some parts of America, but totally unknown in this country."

* Mr. H. E. Dresser, who tells me that this Beverley occurrence is the only occasion on which the present species has been taken in Europe, does not feel justified in admitting it into his work on the Birds of Europe.

ASIO OTUS (*L*).
Long-eared Owl.

A local resident.

Though not quite so numerous as the Tawny Owl, this species is to be found in suitable localities, in varying numbers, but is local, inasmuch as it occurs only in wooded districts. As an immigrant, it is observed annually on the coast in the vicinity of Spurn, but in very limited numbers, and arrives there later in the season than its congener, the Short-eared species, usually in the latter days of November or in December. Mr. Cordeaux informs me that it is annually observed migrating across Heligoland.

Mr. A. Roberts of Scarborough related to me the following curious incident in the nidification of this bird:—"Some years ago, a friend of mine observed a Long-eared Owl leave an old crow's nest and on climbing the tree found the nest empty. Three days afterwards he again saw the owl leave the identical nest; he again ascended, and found three eggs just at hatching. The only way in which this can be accounted for is that, disturbed in other quarters, the owls must have conveyed their eggs to this nest. Out of curiosity the next time I had one of these birds in the flesh for preservation I found that the mouth was quite capable of containing its egg."

ASIO ACCIPITRINUS (*Pallas*).
Short-eared Owl.

A regular autumn and winter visitant. An occasional resident.

The Short-eared Owl is an annual immigrant from the north, arriving on our coast line from the first week in October to the middle of November in considerably varying numbers. These

immigrants after a short rest proceed inland, distributing themselves generally over the county, where specimens are to be observed during the winter months.

My friend Mr. Cordeaux contributed a most interesting article to the Zoologist (1877, p. 9) on the exceptionally large flight which visited these shores during the autumn of 1876, which whilst giving an accurate account of the habits of this species immediately after their arrival, also records some valuable observations on their habits during migration; and I cannot do better than quote his excellent remarks :—

"These birds arrived on the night of the 23rd of October, at least I first found them on the morning of the 24th crouched amid patches of rough sea-grass on the embankment, as well as further inland on drain sides and amidst rough grass in pastures. In the latter places they are comparatively safe. Unfortunately those alighting on the coast are almost invariably potted by the first loafer who at break of day, with rusty fowling-piece and villanous cur at heel, strolls along the sea embankment, for the poor soft-winged slow-flying owl offers an easy mark, and will sit till almost trodden upon. This autumn unprecedented numbers came, and I have heard of them in many localities on this coast. It is astonishing any are left to migrate, considering the number, year after year, wantonly and cruelly destroyed on their first arrival, as well as many which figure afterwards amongst the "sundries" of the autumn and winter shootings. Mr. Lewis, the Principal of the Spurn Lighthouse, says he has never known them strike the glass like other birds, but during the period of migration they will fly round and round the lantern, apparently not incommoded by the blaze of light, and take off small birds that are fluttering and beating themselves to death against the glass. They arrived off Flamborough in flocks of from ten to twenty. The Principal has never known them strike the glass, but has twice observed them perched on the gallery rail on the outside of the lantern. North of Flamborough they appear to have been equally numerous along the coast. On a rock close to the Hartle-

pool Lighthouse a fisherman early one morning in October saw eleven or more sitting together. In a letter lately received from Heligoland, Mr. Gätke says:—'The Short-eared Owls pick off the poor birds when they are dazzled by the glare of the lighthouse, but not those fluttering against the glass; but thrushes on the wing—constantly one hears their dying cries when clutched by the nude talons of an owl that had just flitted like a phantom, noiselessly past the light.'"

In the autumn of 1879 these birds arrived at Spurn at intervals during the last week in October, being most numerous on the morning of the 30th and all had departed by the next day. During the January of 1880, when many migratory species were most erratic in their movements, a fresh immigration occurred at Spurn on the 30th.

As a resident, this species is either overlooked, or rare. From the extensive moors of North-west Yorkshire, which offer every attraction as breeding haunts, it is not reported to have nested, but I have little doubt that it has and does frequent them. Mr. Thomas Bunker of Goole tells me that he is quite confident that a pair bred on the moors near that town in 1879, for they were observed there during the summer, and some men employed in draining told him that on one occasion they must have been in close proximity to the nest, for the old birds swooped at them. Other localities in which it is said to have bred in the West Riding, are on the Otley Moors and Thorne Waste.

In the North Riding it is mentioned in Mr. A. G. More's valuable paper on the distribution of birds during the breeding season, (Ibis, 1865) as frequenting the moors near Scarborough, on the authority of Mr. A. S. Bell, and I am indebted to Mr. More for a copy of Mr. Bell's letter to him dated November 18th, 1862, in which he says:—"Another nest taken this year in the heath on the moors near Scarborough. The eggs were laid in a hole scratched in the ground, four in number. In the former case the eggs were in a hole in a bank side immediately under the root of a tree."

that when going through a colliery in South Yorkshire in Sept. 1877, one of the colliers informed him that they often killed "mosquitoes," which seemed to possess strange qualities. Upon investigation it appeared to him that the "mosquitoes" were a species of *Sirex*, probably escaped from the mine props.

It was from a colliery near Barnsley that Mr. S. Jefferson, F.C.S., of Leeds, received this year (1878) several specimens, one of which he kindly gave me.

These specimens (and also one which was taken alive in Leeds in 1877 and given to me by Mr. Henry Crowther) although usually referred to *S. juvencus*, seem to agree tolerably well with Thomson's description of his *S. melanocerus*. But in view of the great variability of the insects of this genus, it remains for further investigation to show whether they really appertain to the new species, or are merely aberrant specimens of the old one; or even to show whether *S. melanocerus* itself be truly distinct from its congener.

Sirex gigas *L.* A specimen has been this year taken by Mr. John Grassham in a joiner's shop in Leeds, which is unusually fine—in fact the largest I have yet seen.

In the Entom. for April 1879, xii. 111, Mr. Thos. Wilson records the occurrence of two specimens in 1878 at Holgate, York.

Family CYNIPIDÆ—Gallflies.

Again am I indebted to Messrs. Bairstow and Snellen van Vollenhoven for the only additions made in this group. Both are from the Huddersfield district, and their names are—

Synergus pallidicornis *Hart.* (One specimen).

S. facialis *Hart.* (Three).

Families ICHNEUMONIDÆ AND BRACONIDÆ.

See Mr. Bairstow's special report, pp. 68–70.

The following species are additional to my previous list:—

ICHNEUMONIDÆ.

Ichneumon molitorius *L.* Recorded as "Found also in Yorkshire" by J. F. Stephens: Illustrations, vii. 159 (published Sep. 30, 1835).

Mesoleius rufus (*Gr.*)=*Tryphon rufulus*, Steph. Stephens (Illustr., vii. 244, published Nov. 30, 1835) records this species as "Very rare: taken in June in the New Forest, and at Sheffield."

Rhyssa persuasoria (*L.*) Recorded as "Taken at * * *; and York: but rare," by J. F. Stephens in his Illustrations, Supplement, p. 2 (published Aug. 1846).

CHALCIDIDÆ.

To the solitary species recorded last year we have a second to add.

Torymus incertus *Först.* ♀ Huddersfield, (Bairstow).

Family CHRYSIDIDÆ.

Chrysis ignita *L.* This abundant species is only mentioned to add another locality to its range. Eldwick Glen, near Bradford, J. W. Carter!

Tribe FOSSORES.

One addition has been made during the year.

Crabro clavipes *L.* Huddersfield, (Bairstow).

Tribe DIPLOPTERA—Wasps.

Wasps seem to have been very scarce in 1878: I have only seen two Yorkshire specimens—one of *Vespa vulgaris* in Leeds! and one of *Vespa rufa* from Huddersfield, Bairstow!

Tribe ANTHOPHILA—Bees.

So far as my own observations are concerned, the season of 1878 has been a very bad one for bees, even the social ones being greatly diminished in numbers, while the solitary bees were almost non-existent. I am however informed by Mr. Talbot that in the early spring a good harvest fell to him and Mr. Wilcock at Woolley Edge.

The names of the following species are mentioned solely for the sake of providing materials for ascertaining the precise geographical range of even the common species.

Andrena fulva (*Schrank*). Eldwick Glen, near Bradford, common, J. W. Carter!

Halictus albipes (*Fab.*) Huddersfield, ♂, (Bairstow).

Bombus lucorum. Addingham! Wetherby! Bishop Wood! &c.

B. lapidarius. Collingham! Bishop Wood!

In concluding this report I ought to justify the practice of recording precise localities for abundant species. It however seems to me that we are not justified in assuming that any species ranges over a given area of country till we have recorded with precision that it actually does occur at a great number of places scattered over the whole of that area—or in other words that we ought not to make generalizations without a sufficient basis of facts. Hence it follows that a so-called abundant species must be actually recorded for a large number of Yorkshire localities before we can justly say that it ranges over the county. I shall therefore be glad to have the assistance of the members in tracing the actual distribution in our county of all our species of Hymenoptera.

YORKSHIRE ICHNEUMONIDÆ AND BRACONIDÆ FOR 1878.

By S. D. BAIRSTOW, Huddersfield.

In reviewing the Report of this group I think we may venture to congratulate ourselves somewhat on the season's work, without losing sight of the fact that 50 or 60 species out of a sum total of 1186 is no flattering percentage on the whole, even though our *primum mobile* and inclusive of the timely assistance of the Rev. T. A. Marshall's 'Yorkshire List' (vide Roebuck's Report for 1877).

The insect world has been suffering from a reaction—the effect of that exceptionally inclement weather it experienced in 1877, and Ichneumons along with other orders must have had their ranks depopulated by the disastrous rains and consequences of that year. Under such unpropitious circumstances the list ensuing will stand as an earnest at all events of future efforts, and serve as an impulse to the ball, which I sincerely hope is "on the move."

In another place I have referred to the ACTUAL NECESSITY OF CO-OPERATION. Mr. Roebuck and myself can do but little unless our lepidopterists (who are almost compelled in their labors to meet with *some* specimens of our groups) *forward* to us—I may not say give—their captures for purposes of identification and record.

In order to establish authenticity as a principle and basis of operations I have spared no effort to attain that object, and desire in this place to express my thanks to Dr. Snellen van Vollenhoven, of the Hague (author of 'Pinacographia'), a naturalist in more senses than one, and to other gentlemen whose assistance it is needless to particularize. Collectors also must be careful not to transmit as Yorkshire specimens for naming, specimens bred *in* Yorkshire, but bred *from* larvæ obtained in other counties.

As the Rev. T. A. Marshall's list is not of very recent date, I give the names, along with new captures, of a few insects already mentioned in the 1877 list, so that we may have specified districts where the insects are taken, as well as periods. If the recorder's name is not given my own is intended.

ICHNEUMONIDES.

Ichneumon varipes (*?*) One from Bishop Wood.

I. luctatorius *L.*, var. (?) ♂. Storthes Wood.

I. fabricator *Fab.* Several from Bishop Wood.

Amblyteles amatorius *Müll.* One ♀. Bred. Huddersfield district.

A. fasciatorius (*Fab.*)=*armatorius*, Fab. ♀. Given to me by Mr. S. L. Mosley. Bred, August, out of *Noctua xanthographa*. Huddersfield district.

CRYPTIDES.

Cryptus obscurus *Grav.* One ♀. Bradley Wood.

C. migrator *Fab.* One ♂. Grimescar Wood, Huddersfield.

OPHIONIDES.

Ophion obscurus *Fab.* Common through county. Taken at Storthes, Bishop Wood, Crosland, Bolton Woods, &c.

TRYPHONIDES.

Tryphon calcator (*Müll.*) *Grav.* One ♂. Bishop Wood.

Mesoleptus geniculosus *Grav.* ♂. Hambleton.

Bassus lætatorius *Fab.* (*?*). ♀. Storthes Wood.

B. festivus *Fab.* (*?*) Bishop Wood.

Metopius dentatus *Fab.* Bradford (Bred, H. Hebblethwaite).

Mesoleius niger *Grav.* Reported from Bradford. Query as to authority.

PIMPLIDES.

Pimpla instigator *Fab.* Common through Huddersfield district.

P. scanica *Vill.* Several ♀ and ♂. Storthes Woods and Grimescar.

Ischnoceros rusticus *Fourc.* One ♀ sent to me by Mr. S. L. Mosley. No particulars.

BRACONIDÆ.

Microgaster rugulosus *Nees.* Var. ♀. Huddersfield.

M. dilutus *Ratz.* Out of *Liparis auriflua.* Askern. Also given to me by Mr. S. L. Mosley out of same insect.

Pygostolus sticticus (*Fab.*) Given to me and taken by Mr. S. L. Mosley. Dungeon Wood, Huddersfield.

Macrocentrus thoracicus (*Nees*). Two ♀. Kirkburton.

Opius reconditor *Wesm.* ♀ (var. *capite rufa*). Storthes near Huddersfield.

Microplitis alvearia (*Fab.*)

At page 40 of Mr. Roebuck's first report will be found a record of *Microplitis alvearia* (Fab.), which was inserted as he informs me by mistake, and not discovered until too late to rectify. It seems that though the specimens of *Dasypolia Templi* were from Yorkshire, yet that the parasites were not. However the species is a common one, and will no doubt be re-eligible for admission into our lists after further research. Possibly it is the same species as was recorded as existing in a single example of *D. Templi* to the number of no less than 447. This was near Scarborough (Thos. Wilkinson, E. M. M., April 1867, iii. 264).

YORKSHIRE MACRO-LEPIDOPTERA IN 1878.

By G. T. PORRITT, F.L.S., HUDDERSFIELD,
Secretary of the Entomological Section.

It is with a feeling of reluctance that we commence to write the record of work done in our county during 1878. The hope expressed in the concluding paragraph of last year's report has not been realized; indeed, if possible the season of 1878 was even worse than that preceding it. It has gone hardly for that fairly numerous band of young lepidopterists who have commenced the science during the last three or four years, as they have never yet had a fair chance of making even a moderate start. We fear some, but we hope not many, will have been sorely tempted to give up the pursuit in disgust, and to turn, if not away from natural history study altogether, at least to some other at present apparently more interesting branch of it. To such we can only say—wait a little longer still—our county is not so dreary as it seems, and good seasons, probably continuous ones, will assuredly come even as they have done in days gone by. Just now there is great ground for hope, for has it not always been an axiom with lepidopterists that "the harder the winter, the better the season following it," and if this be so, what shall we have after this, almost the severest winter (nine weeks nearly continuous frost) ever remembered by our oldest entomologists!

This year we are unable to record the occurrence of a single species as new to the county. This is not as it should be, as we may be perfectly certain there are large numbers of species still to turn up in the very many little or totally unexplored portions of our large area for investigation. The longfelt want however of a complete list with localities of the lepidoptera of Yorkshire as known at the present time may account for this, as the working members of our Section often complain that they have had no proper basis to work upon, and consequently a great incentive for discovery

has been and still is wanting. At the request of the section Mr. Prest and I have undertaken to compile such a list, and are already hard at work on it, and if lepidopterists in all parts of the county will only send in their lists promptly, we think we may safely promise to have it out before the close of 1879.

NEW LOCALITIES.

Twenty-three species have been noticed in fresh localities against seventeen last year. They are as follows :—

SPECIES.	NEW LOCALITY.	RECORDER.
Deilephila galii ...	... Bradford	J. W. Carter.
Selenia lunaria ...	... Bradford	J. W. Carter.
Venusia cambricaria	... Bingley	E. P. P. Butterfield.
Numeria pulveraria	... Saltaire	J. W. Carter.
Hybernia rupicapraria	.. Saltaire	W. Lorimer.
Larentia salicata ...	... Shipley Glen ...	J. Firth.
Eupithecia venosata	... Cottingley ...	F. Suthers.
Hypsipetes impluviata	... Saltaire	J. W. Carter.
Cidaria corylata ...	... Bradford	J. Firth.
Cilix spinula ...	... Bradford	J. Firth.
Acronycta alni ...	Escrick Park, nr. Selby	Thomas Foster.
Miana literosa ...	... Bradford	H. Andrews.
Celæna Haworthii	... Rombalds Moor	C. C. Starling.
Agrotis suffusa ...	... Bradford	C. C. Starling.
A. agathina	... Bingley	E. P. P. Butterfield.
Tryphæna janthina	... Manningham ...	J. Firth.
Noctua Dahlii ...	... Bingley	E. P. P. Butterfield.
N. baja	... Bradford	H. Andrews.
Orthosia suspecta ...	... Bingley	E. P. P. Butterfield.
O. lota	... Bingley	E. P. P. Butterfield.
O. macilenta ...	... Bingley	E. P. P. Butterfield.
Anchocelis lunosa ...	... York	William Prest.
Mania maura ...	... Saltaire	W. Lambert.

The majority of these might reasonably have been expected in their several districts, but have evidently been overlooked previously. The following however are worthy of note:—

Selenia lunaria. Bradford makes an addition to the number of localities where this species has occasionally occurred, though seldom more than a few specimens seem to be taken in one season at any of them.

Venusia cambricaria. Mr. Butterfield says this local moth occurred in profusion in stony places; this is very gratifying, as it appears to be getting scarcer in some of its better known localities.

Larentia salicata. Perhaps the most interesting species in the list; having been noticed only in one or two other Yorkshire districts.

Celæna Haworthii. Evidently occurs on all our West Riding moors wherever its food plant, the cotton grass, occurs.

Anchocelis lunosa. A most unusual species in the county, though there seems to be no reason why it should not occur more frequently.

RARITIES IN 1878.

These have been but few in number and not equal in interest to those of last year.

Colias Edusa, which last year created such excitement amongst us, has not put in an appearance at all; and even in the southern counties has been scarcer than in ordinary seasons.

The best moth taken was the **Deilephila galii** at Bradford, already alluded to; and the single larva at Escrick Park is the only record we have of **Acronycta alni.** As a Yorkshire example the **Anchocelis lunosa** at York is about as rare as any of them. The feature of the year, not only in our own but in other counties, has been the unusual number of **Acherontia Atropos** that have been found. These were mostly in the larval state, but many

were found later as pupæ. Selby and Goole have been their head-quarters with us. Mr. Thomas Foster says they were plentiful at the former place in August and September, and Mr. Thomas Bunker records them at the latter.

NOTICEABLE RECORDS.

The following may be mentioned under this heading :—

Chortobius Davus. At Thorne Moor, by Mr. W. E. Brady of Barnsley.

Eurymene dolobraria. At Bishop Wood, Selby, by myself.

Nyssia hispidaria. At Bishop Wood, by Messrs. William Prest of York and S. D. Bairstow of Huddersfield.

Hyria auroraria. At Thorne Moor, by Mr. W. E. Brady.

Eupithecia lariciata. Beaten in plenty from the firs at Brantingham by a number of the members of our section on the occasion of the Union's excursion to Brough on Whit Monday, June 10th.

Thera firmata. In plenty *at sugar* at York in September, by Mr. Prest.

Melanthia albicillata. Only worthy of mention on account of the great abundance in which it was noticed at Bishop Wood at Whitsuntide (June 8th), by Messrs. Prest, Porritt and Bairstow.

Cidaria silaceata. Common at Bishop Wood in June, Messrs. Prest, Porritt and Bairstow.

Notodonta dromedarius. At Wharncliffe Woods near Sheffield, by myself.

Agrotis lucernea. At Armitage Bridge, Huddersfield, by the Rev. G. C. B. Madden.

Tæniocampa populeti. Commonly at Bishop Wood, by Mr. Prest.

Tethea subtusa. Bishop Wood, Mr. Prest.

Epunda viminalis. At Huddersfield, by myself.

Brephos parthenias and **B. notha.** Both in tolerable plenty at Bramham, by Mr. John Smith.

VARIETIES, &c.

To most lepidopterists outside our county this will be the most interesting paragraph in our report, as with the exception of Lancashire, Yorkshire is more noted for extraordinary aberrations than any other county; and a box containing all the unusual forms obtained even during this worst of seasons would to a southern variety fancier be a show not soon forgotten. Foremost would come the unprecedented number of eighteen specimens of the broad-black-bordered form of **Abraxas grossulariata,** figured in Newman's 'British Moths,' and still better in Part I. of Mosley's 'Varieties.'* Of these, fifteen were bred by the Bradford collectors, mostly if not all from larvæ or pupæ collected at Thornton, near that town. The three others were obtained by Mr. William Porteus of Halifax. In addition to those of the dark form, two were bred by Mr. J. Firth of Bradford, of the other extreme, being white and without the black markings; they were from the same Thornton locality, and of course still more interesting to us than the dark ones.

The variety **Doubledayaria** of **Amphydasis betularia** seems this year to have been even more common than the ordinary "peppered" form. Other remarkable specimens include a peculiar dark form of **Larentia didymata** at Huddersfield by Mr. S. L. Mosley, a fine **Cidaria russata** taken by myself in Armitage Bridge Wood, Huddersfield, having the usually palest portion of the fore wings (the light central band) perfectly black, a form rarely seen even in this most variable species. Lastly, Mr. Prest took a hermaphrodite **Epione vespertaria** at Sandburn in July.

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* This form has now become so constant and well known, that I propose to name it *A. grossulariata* var. *Varleyata*, in compliment to Mr. James Varley, who many years ago first introduced it to the notice of lepidopterists, and also as an acknowledgment of his services in this branch of entomology.

In connection with varieties it is a pleasure to have to notice in conclusion a work begun by a valued member of our section, Mr. S. L. Mosley of Huddersfield. Mr. Mosley has already issued two parts of his 'Varieties of British Lepidoptera,' each part being composed of a series of plates with short notices on extraordinary forms of British lepidoptera. Many of those in the cabinets of our county have already been figured, and it is Mr. Mosley's wish to publish accurate figures of all the extraordinary aberrations in British collections, if the owners will kindly lend them to him for the purpose. The plates are all painted by himself, and are so beautifully executed that we are not surprised so many of the leading lepidopterists in the country have been glad of the opportunity of subscribing for what promises to be so valuable a work.

Highroyd House, Huddersfield.

YORKSHIRE MACRO-LEPIDOPTERA IN 1879.

By G. T. PORRITT, F.L.S., Huddersfield,

President of the Entomological Section, 1880.

Like the commercial world, the entomological world at last shows signs of improvement, for the year 1879 was, we think there can be no doubt, a little better than its two predecessors. Let us hope, and surely we are justified in the expectation, that in both cases the improvement will be permanent and increasing. Not, indeed, that the past season was a good one; far from it—for even comparing it with the average of seasons, we should pronounce it a bad one. We had an exceptionally backward spring, so much so that until quite the end of May, there was comparatively little sign, even in the foliage of our forest trees, of approaching summer; and consequently although larvæ were found tolerably plentifully by those who worked for them, hardly any imagos were to be got. During June, however, there was a rapid and marked improvement, and in July and early in August, in many localities, noctuæ actually swarmed at the sugared trees; indeed during those few weeks was almost the only bit of good sugaring we have had since 1875, when moths flocked to the baited trees nearly through the year. From the middle of August there was an equally rapid fall off, and since the beginning of September it has been waste of time going out collecting.

One peculiarity of the season was the complete upsetting of all our ideas as to when species should appear; everything was late, some species more so than others, so that usually no rule could be laid down by which to calculate how late any particular species might be. As instances may be mentioned that the only moth which visited my sugared trees on the night of June 13th was **Tæniocampa gothica,** ordinarily a March and early April species; whilst **Abraxas ulmata,** which may usually be safely

counted on in May, was found in good condition, and not uncommon, on the occasion of the Union's excursion to Edlington Wood on Bank Holiday, August 4th; and I again saw two worn examples in the same locality so late as September 6th! All the specimens had undoubtedly passed the winter in the pupa stage, and were not part of a second brood. Hosts of other instances might be given, though—except perhaps in the case of **Melanthia albicillata**—not so marked as these.

Again we are unable to add a single species as new to our county. The localities fixed upon for the excursions did not give us much hope of this, as they were to places tolerably well worked before or of similar ground; and our list of macro-lepidoptera is now so extensive, that only in unworked localities can we reasonably expect many fresh things. Of such spots however there are still plenty, and every season for years to come ought to add one or two species previously unknown to our area of work.

NEW LOCALITIES.

The average has been fully maintained, the number being twenty-one, against twenty-three in 1878, and seventeen in 1877.

Species.	*New Localities.*	*Recorder.*
Ennomos alniaria L. =*tiliaria* Bork.	Bradford	H. T. Soppitt.
Acidalia scutulata	...Bradford	J. A. Butterfield.
Cabera exanthemaria	...Saltaire...	J. Terry.
Macaria liturata ...	...Bingley	J. A. Butterfield.
Fidonia piniaria ...	...Bingley	E. P. P. Butterfield.
Eupithecia castigata	...Bingley	E. P. P. Butterfield.
,, *lariciata*	...Bingley	E. P. P. Butterfield.
,, *minutata*	...Bingley	J. A. Butterfield.
Cidaria russata ...	...Bradford	J. W. Carter.
,, *prunata* ...	...Bingley	E. P. P. Butterfield.
Notodonta dictæoides	...Bingley	J. A. Butterfield.
,, *dromedarius*	..Bradford	W. H. Cooper.
Acronycta leporina	...Bradford	J. W. Carter.

Species.	*New Localities.*	*Recorder.*
Celæna Haworthii	...Penistone Moors...	John Harrison.
Noctua Dahlii ...	...Barnsley	John Harrison.
Dasypolia templi ...	...Bradford	J. Hirst.
Agrotis lucernea ...	...Saltaire...	W. Firth.
„ „ ...	...Brighouse	G. T. Porritt.
Xanthia cerago ...	...Bingley	E. P. P. Butterfield.
Aplecta herbida ...	...Bradford	W. Hodgson.
Hadena adusta ...	...Bingley	J. A. Butterfield.
Scoparia basistrigalis	...Doncaster	G. T. Porritt.
„ *cratægalis*	...Doncaster	G. T. Porritt.

Of these only two species need be further alluded to:—

Scoparia basistrigalis. On the occasion of the Union's excursion to Doncaster, on Bank Holiday, August 4th, whilst collecting in company with Messrs. W. Prest and R. Hind of York in Edlington Wood, we were fortunate enough to come across this interesting species. It appeared to be somewhat local, but in an area of perhaps a hundred or more yards square it occurred in great abundance, upwards of a dozen sometimes occurring on a single tree. Some years ago Mr. Prest took a few specimens at Bishop Wood near Selby, but we do not remember any other Yorkshire locality.

Agrotis lucernea. The occurrence of this species in various parts of the West Riding in odd specimens only, is very singular, as, with the exception of the Bradford specimen (which was taken at rest on a rock in Shipley Glen on September 6th) all I have seen were in beautiful condition, apparently not long out of pupa.

RARITIES IN 1879.

Only three species have been recorded which are worthy of being placed under this heading:—

Acronycta alni. No imagos appear to have been observed, but two larvæ were taken. One, a half-grown specimen, was secured by Mr. C. W. Richardson from oak in Haw Park, near Wakefield, on September 17th; the other by Mr. Austen Hind

about the same date, from mountain ash, at Sandburn near York.

Boarmia roboraria. Mr. Thomas Foster of Selby took this species not uncommonly at Bishop Wood in July.

Vanessa antiopa. One was seen, though not captured, in the autumn by Mr. John Smith of Bramham.

ABUNDANCE OF VANESSA CARDUI AND PLUSIA GAMMA.

The periodical abundance of various species in different seasons has always been one of the most perplexing problems to the lepidopterist; and even now we seem as far off as ever from any satisfactory solution. As surely as each season commences there is a general expectation that some species or other will turn up in it in altogether unusual numbers; though hardly anyone will venture to hazard an opinion as to what species it will be. If he do happen to be so rash, he is pretty certain to name one entirely different from what proves to be the case, and probably even in a widely different family! 1865 is known as "the *Celerio* year;" and since then we have had a "*Lineata* year;" a "*Lathonia* year;" a "*Pulchella* year" and others. 1872 was the "great *Antiopa* year;" 1877 the "*Edusa* year;" whilst last year, 1879, an invasion of *Plusia gamma* and *Vanessa cardui* overran the land. The entomological journals will have given us all a tolerably clear idea of the prodigious numbers of both species contained in this invasion. Suffice it to say that both in Britain and on the Continent of Europe, probably in all parts of it, has *gamma* swarmed in countless thousands, both on the sea-coast and inland. Writing from Bournemouth of *V. cardui* and *P. gamma*, Mr. McRae says, (Entom. p. 222) "the former are swarming in thousands, and the latter in tens of thousands. With the doubtful exception of gnats on a calm summer evening, I have never seen any species of insect so multitudinous." Mr. Joseph Anderson, Junr., of Chichester, recorded whole fields of peas being well nigh stripped bare of leaves by the larvæ of *gamma*, the moths swarming

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THE

TRANSACTIONS

OF THE

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Mr. Thomas Stephenson, of Whitby, informs me that Mr. William Lister has seen the young birds taken from a nest on the Egton Moors, near Whitby, about the year 1850, and does not doubt that even now they occasionally breed there. On the Danby Moors, also in Cleveland, Mr. W. H. Raw has found at least four nests, all of which contained young birds, and were placed among "old heather broken down and dead at the roots." The young did not in any instance exceed three in number. Mr. Raw found the last nest in 1867 or 1868, soon after which date he left the locality, so that he thinks it is quite possible that they may still breed there.

In concluding my account of this species, mention should be made of the fact that "Hawk Owl" is a name by which it is known in some parts of the county; and the result of my inquiries and the examination of specimens has been to prove that the "Hawk Owls" reported to have occurred in Yorkshire have in every instance been examples of the Short-eared Owl. The Hawk Owl (*Surnia funerea*), so far as I have been able to ascertain, has never occurred in this county. With respect to the example quoted by Mr. Harting in his Handbook of British Birds as having occurred at Shelf near Bradford, the result of such inquiries as I have been able to make has been eminently unsatisfactory, and I do not feel justified in including the species as a Yorkshire bird on the strength of this record.

BUBO IGNAVUS *T. Forster.*

Eagle Owl.

A rare and accidental visitor.

The earliest allusion to this species as a Yorkshire bird is made by Pennant in 1768 (British Zoology, i., p. 157) who stated that it had once been shot in the county. There are also several

other instances of this rare visitor to Britain having occurred in Yorkshire, and in the following enumeration of them, Prof. Newton's remark (Yarrell's Birds, ed. 4, p. 170) as to the probability of many of the British examples being escapes from captivity, is particularly applicable to those specimens which have occurred during the summer months.

One shot at Horton near Bradford about the year 1824, is mentioned by the late Mr. Henry Denny in his Catalogue of Yorkshire birds contributed in 1840 to the Annals of Natural History (vol. 7).

Mr. Thomas Allis mentions one taken alive in a wood near Harrogate in the summer of 1832. This specimen was purchased by Mr. George Lane Fox of Bramham, and is now in the York museum.

Mr. Patrick Hawkridge of Scarborough communicated to Neville Wood's Naturalist (1838, p. 155) a note of the capture of a specimen off Flamborough Head. The bird, after alighting upon the mast of a sloop sailing by, was with difficulty secured, after it had "actually pinned down with its powerful talons the cabin boy, who had been sent aloft to seize it."

The example mentioned by the Rev. F. O. Morris (Brit. Birds, 1851, vol. i., p. 184) as shot in the woods at Clifton Castle near Bedale, in the month of March, 1845, proved—as the result of inquiries made through my obliging correspondent Mr. James Carter of Masham—to be a bird escaped from Hornby Castle, the residence of the Duke of Leeds. A letter from Mr. Wilie, the Duke's agent, describes the bird as being from the forest at Mar Lodge, N.B.

Mr. C. C. Hanson of Greetland near Halifax, informs me that on a very dark day in November, 1845, he snapped an old flint gun at an Eagle Owl, but the gun missing fire as usual, the owl stared at him for a moment "with eyes like a leopard," then off it went. Mr. Hanson had approached quite close by the aid of an intervening stack.

In July, 1876, an Eagle Owl was captured on Rombalds Moor, above Ilkley, by two farm servants; the bird being quite unable to fly, owing to its plumage being "storm soaked." This bird is now kept alive in a small vivarium at Roundhay Park, Leeds, along with two specimens said to have been taken from a nest near Aberdeen!

The latest occurrence was at Scarborough, on the 30th of October, 1879, after a very heavy gale from the N.E. Mr. A. Roberts, to whom I am indebted for the information, was on his way to the museum at one o'clock p.m., when he was startled by seeing a very large Eagle Owl flying quite low in one of the back streets, which on arriving within ten yards of him rose with difficulty over the cottages and disappeared. The bird was also seen immediately afterwards by Mr. Robert Champley to alight in Lord Londesborough's grounds.

SCOPS GIU (*Scopoli*).

Scops Owl.

A rare and accidental visitant.

The first instances of the occurrence of this beautiful little owl in Britain were announced from Yorkshire by Mr. Foljambe, of Osberton, an accurate ornithologist, who assured Colonel Montagu that a specimen in his possession had, he believed, been shot in this county, and that Mr. Charles Fothergill of York had another shot in the spring of 1805 near Wetherby.

According to Mr. Thomas Allis (1844) this bird had been met with at Womersley, in the West Riding, and the Rev. F. O. Morris was his authority for the mention of a pair of old and a pair of young birds shot some years before at Ripley, near Harrogate, where Mr. William Stubbs, the Ripon taxidermist, found them nailed up and quite spoilt by a fortnight's exposure. The gamekeeper of Sir

Matthew Wilson, of Eshton Hall, near Skipton, in describing his exploits to a gentleman, said that some years ago he shot such a thing as he never saw before or since—"it was a regular formed 'Hullet' not bigger than his fist with horns above its eyes," and undoubtedly this was the species thus described. Mr. Arthur Strickland says a beautiful specimen of this little bird appeared in July, 1832, in the grounds at Boynton, and by its loud and distinct note attracted general attention. This note was like the sound of a single note on a musical instrument, repeated at about half a minute's interval, and was so loud that it could be distinctly heard in the house when the bird was some distance off in the tall trees. After a time it was shot by firing at the sound, for it was too dark to see the bird. Another specimen was shot near Driffield about the year 1839 ; and from the description given to him Mr. Allis had no doubt that this species had also occurred in the grounds of Mr. Beaumont, of Sandhutton.

Mr. Thomas Stephenson, of Whitby, writes me that Mr. William Lister, of Glaisdale, has not the least doubt that this species was shot on the Egton Estate in 1865. The bird was described to him as being a little mottled owl, only half the size of the Short-eared Owl, and having longer ears. Mr. Lister went to examine this bird, but unfortunately it had in the meantime come under the notice of a stranger, to whom it was sold.

SCOPS ASIO (*L.*)

Little Screech Owl.

An accidental visitant.

It is supposed that this owl, which is according to Audubon (Orn. Biog.) a somewhat common North American species, has occurred on two occasions in England, in the counties of Yorkshire and Norfolk (Stevenson's Birds of Norfolk, vol. i., p. 44); but the bird's claim to a place on the British list is not

admitted, and I am informed by Mr. H. E. Dresser, one of the best authorities we have on the avifauna of Europe, that it has not been reported from any part of the continent.

The information relating to the occurrence in which we are specially interested is, along with an etching of the bird, contained in the late Dr. Hobson's communication to the Naturalist of 1855 (p. 169), from which I have abstracted the following:—

The owl in question is in its grey plumage, and was shot by Joseph Owen in the breeding season of 1852 in Hawksworth Cover, the property of the Earl of Cardigan, half a mile above Kirkstall Abbey, and within the borough of Leeds. At that period there were a pair of owls, and so far as Owen could judge by moonlight they appeared to be similar in size, color and flight. He at once saw that these birds differed materially from our common Screech Owl, and was therefore extremely anxious to secure them; and, having shot one, he went to their haunt night after night to obtain the other, but this unfortunately he could never accomplish. Owen, ignorant of the value of his treasure, gave this owl, in the flesh, to a bird-stuffer in Leeds, called Matthew Smith, who immediately put it up under the impression that it was a "Scops-eared Owl," and, under the same error in judgment, sold it to Dr. Hobson.

CARINE NOCTUA (*Scopoli*).

Little Owl.

A rare and accidental visitant.

Not only is the whole of the information relating to the occurrence of this species exceedingly meagre, but unfortunately it is of a vague nature, from the fact that in every instance the records show an entire absence of details.

The earliest reference to this as a Yorkshire bird is made

in 1768 in Pennant's British Zoology (i., p. 160) where it is said to be "very rare in England; it is sometimes found in Yorkshire." I suspect this is the authority from which Dr. John Berkenhout obtained the information for his Synopsis of the Natural History of Great Britain (1778), in which this species is described as having occurred in Yorkshire. Doubtless also Pennant's book is the source whence Mr. C. Fothergill derived the statement, given in his Ornithologia Britannica, 1799, that it is "extremely rare in this kingdom, chiefly found in Yorkshire."

In 1828 Mr. Leyland of Halifax published a list of the birds occurring around that town, wherein he mentions under the head of *Strix passerina*, Little Owl—"I have reason to believe that this species has been met with here; it has not however fallen under my own observation." The first edition of Yarrell's unrivalled work on British birds, published in 1843, contains a statement that the Little Owl has occurred in Yorkshire, and this is reiterated in the fourth edition now publishing.

The "little earless owl" is included in a list of the birds which had been observed in Walton Park by the late Mr. Charles Waterton, and published in 1866, after his death, by Dr. Hobson. With regard to this, it should be remembered that in the year 1842 Waterton purchased a dozen birds of this species at Rome; five of them survived the journey and were liberated in Walton Park.*

* Under the heading of "Flight of 'Little Owls' in Yorkshire" the following appeared in Neville Wood's Naturalist (1838, p. 168)—"Mr. Rudston Read informs us that, some time since, from twenty to thirty 'Little Owls' were seen in a gorse cover belonging to P. Davies Cooke, Esq., of Owston Hall, near Doncaster. Mr. Read's informant was well acquainted with all the common British species of owl, and stated positively that the Owston birds belonged to none of these. Unfortunately none of these 'Little Owls' were preserved.—Ed."

NYCTEA SCANDIACA (*L.*)

Snowy Owl.

A rare and accidental visitant.

In one instance only has a specimen of this fine species been obtained in Yorkshire, but there are several occasions on which it has been, or is supposed to have been, observed in the county.

Mr. A. Clapham, of Scarborough, informs me that he has in his collection one which was shot on Barlow Moor, near Selby, on the 13th of February, 1837. At that date the moor abounded in rabbits and furze, and was rented by his father for sporting purposes. The bird was first observed by the miller of an adjoining mill on the 12th and mistaken by him for a goose, but seeing it still there the next day he shot at it, just tipping the pinion. On an attempt being made to capture it, the bird threw itself on its back and offered so fierce a resistance that it was secured with difficulty and afterwards killed. This bird was exhibited during the year 1837 at a meeting of the Zoological Society, by Mr. A. N. Vigors, F.R.S. Mr. Clapham tells me that the Rev. Mr. Morris's statement in his British Birds (1851, i., 195) that this bird was accompanied by another of the same species is incorrect.

Between the years 1849 and 1853, during the winter or early spring months, Mr. Clapham, whilst walking at Scarborough, saw a large white bird flying towards the castle, which, from its size, soft steady flight and broad wings, he concluded was *N. Scandiaca.* This impression was confirmed on his hearing a day or two afterwards that a Snowy Owl had been shot at and missed from the Filey Rocks.

Regarding a possible occurrence of this species at Flamborough on the 14th of October, 1865, Mr. Cordeaux wrote as follows in the Zoologist (1866, p. 1026):—"A large owl chequered all over black and white, and, as the man said, 'as large as a

great black-backed gull,' was seen in a turnip field. The man who saw it went home instantly for his gun; on his return, however, the bird had disappeared. Otherwise I might possibly have added *Surnia nyctea* to the avifauna of Flamborough."

In Land and Water for December 27th, 1879, Mr. Edward Thompson, in some Scarborough notes, mentions a Snowy Owl as having been seen near that town, and an unsuccessful attempt made to shoot it. On communicating with Mr. Thompson I learnt that the bird frequented the New Park during the month of December and was frequently seen.

ALUCO FLAMMEUS (*L.*)

Barn Owl.

A resident.

This, the most generally distributed of the owls in Yorkshire, whilst found in a lesser or greater degree of abundance in all districts, appears to be more numerous in the southern portion of the county than elsewhere; and it seems to me probable that its numbers are increased by an immigration of either a partial nature from more northern British localities, or from the European continent, for there are instances of the species occasionally occurring in unusual numbers during the later months of the year. Though not the most numerous, this is the best known of all the owls, probably from the fact of its taking up its abode in close proximity to the haunts of man and frequenting the towers of churches, whence it has acquired a kind of ghostly fame. I am glad to say that many of my numerous correspondents allude to its receiving protection from the farmers; and now that this class has learned to appreciate the services rendered by this bird, it is to be hoped that before many more years the game preserver may be as fully alive to the equally

valuable services of the woodland species.*

In the collection of Mr. Edward Tindall of Knapton Hall is a fine variety obtained at Hackness near Scarborough, in December, 1876. This specimen has the back and wings of a rich chesnut-brown, the wings shaded with mouse colour, the usual black spots being absent; the facial disks a light buff radiated with chesnut; the breast light buff and unspotted. Professor Newton (Yarrell's Birds, vol. i., p. 198) speaking of a similar variety, described by Mr. Stevenson, which occurred in Norfolk, considers it to be of foreign origin and probably an accidental visitor to this country, and remarks that Danish examples in particular have the facial disks of a dark rusty-red colour.

PASSERES. *LANIIDÆ.*

LANIUS EXCUBITOR *L.*

Great Grey Shrike.

An uncommon winter visitant.

On the coast and especially in Holderness the Great Grey Shrike is observed almost annually as an autumn immigrant, arriving, as a rule, during the latter days of October; and although varying in numbers, is always very far from numerous.

* No apology is needed for introducing the following analysis of the castings of our three most abundant species, given at p. 148 of Newton's Yarrell. Such evidence cannot be too widely disseminated or too well known.

	No. of Pellets examined.	Remains found.							
		Bats.	Rats.	Mice.	Voles.	Shrews.	Moles.	[Small] Birds.	Beetles.
Tawny Owl.....	210		6	42	296	33	48	18	48
Long-eared Owl.....	25			6	35			2	
Barn Owl.....	706	16	3	237	693	1590		22	

The occurrence of quite a young bird of the year at Kilnsea, in the East Riding, on the 26th of August, 1877, recorded in the Field (1877, p. 281), is unprecedentedly early. Remaining throughout the winter, it has at that season occurred in most parts of the county, but cannot be said to frequent any locality regularly, though the list of recorded occurrences is very voluminous. Taking its departure on the advent of spring, we must look upon the shooting of one at York whilst in the pursuit of Fieldfares, on the 18th of April, 1849 (Zoologist, 1849, p. 2452) as a late occurrence.

During an ornithological excursion in Dutch Brabant in May, 1879, I obtained several nests of this bird, all of which were placed in the small detached pines which are scattered over the extensive heaths of that province. Each pair of birds had its own limited district, as it were, from which others of the race were seemingly strictly excluded. The nest, placed about five feet from the ground, was a considerable structure of dry grasses and a profusion of feathers. One nest had a quantity of fine heather, rag, string and worsted in its composition. The usual number of the eggs was seven.

LANIUS COLLURIO *L.*

Red-Backed Shrike.

A rare casual summer visitant.

This bird is of much less frequent occurrence in the county than the Great Grey Shrike. It has been recorded to breed in a few instances, but does not now, so far as my knowledge extends, repair annually to any single locality, though formerly it seems to have ranked as a somewhat regular visitor, for the late Mr. Henry Denny, who was an excellent naturalist, in his Leeds Catalogue, 1840, cites this species as "not uncommon" in several localities

near Leeds; Mr. Allis in 1844 stated that it bred occasionally near Halifax, but was becoming scarce, that it was not very uncommon near Sheffield and Doncaster, and was occasionally met with near Huddersfield and York; and Mr. James Varley of Huddersfield tells me that he can well remember it as an almost annual visitor in that neighbourhood, and that he has himself taken both nests and eggs. When on its migration it has been observed both in the spring and autumn, but its visits then are few and far between.

The following are the occasions on which it has nested in the county :—Dr. Farrar of Barnsley obtained a pair of old birds, which were snared on their nest, in Cliff Wood, near that town, in the year 1826. Mr. H. Smurthwaite of Richmond, in Morris's Naturalist (1854, p. 81) mentions that eggs in the collection of his friend Mr. Wood were taken from nests near that place. Dr. Hall communicated to the Field (1869, p. 435) a note that a nest with four young birds had been taken within a mile of the town of Sheffield in the early summer of 1868. Mr. J. T. Calvert of Keighley informs me that it has bred near Silsden, in Airedale, from whence one or two nests have been obtained.

Regarding the nesting of this bird a. Beverley in 1876, Mr. Boyes communicated the following particulars to the Zoologist (1877, p. 157) :—"The Red-backed Shrike is a very rare bird here, and I cannot hear that one has been seen for fifteen years. On May 27th a hen bird of this species was shot, and on the following day a pair were obtained. A circumstance occurred in connection with the capture of these birds that is perhaps interesting. It appears the male and female were both sitting on a dead branch near each other when the female was shot. The person who shot it repaired to the same place early the following day to shoot the male, when he found a second female; this he shot, and later in the day shot the male. Is it possible that the male had two wives? It is scarcely reasonable that he could have picked up another mate in so short a time in a part of the country where these birds are so rare. I ought to mention

that the first female was laying, and had an egg fully developed in the ovary. A search was afterwards made, and the old nest containing one egg found near the spot where all the three birds were shot. The second female was a younger bird, and showed no signs of breeding, the eggs in the ovary being very small."

In addition to the above the Red-backed Shrike has been observed on the undermentioned occasions in the county. In some of these instances the dates would seem to indicate that the species had nested in the locality, but the majority of the occurrences were doubtless birds on their spring or autumn migrations.

Prior to 1845 one was shot near Guisborough, and another observed near Hull (Zoologist, 1845, pp. 1055 and 1023). One was taken in a trap baited with young thrushes, at Ackworth, in the summer of 1856 (Morris's Naturalist, 1857, p. 198).

On the 26th of September, 1866, a fine female was shot at Flanshaw near Wakefield, and preserved by Mr. Wm. Talbot. Mr. W. W. Boulton informed Mr. Cordeaux that an adult female, which he had in the flesh, shot near Beverley about the year 1866 or 1867, was the only example he had seen of this species in that neighbourhood; and the latter gentleman in treating of this species in his Birds of the Humber District quotes it as "very rare," remarking that he had "never seen or met with a Lincolnshire-killed specimen." In the year 1869, on the first of July, Mr. J. Lucas observed a Red-backed Shrike chattering and making a great noise in a dell known as Hole Bottom, in Nidderdale; adding that it is there a rare bird and that he had no other record of its occurrence in that part of Yorkshire (Zool., 1879, p. 404). On the 18th of May, 1872, one occurred at Clayton West, and about 1876 a mature bird was obtained near Richmond. Mr. M. Bailey of Flamborough has in his collection a fine male which was brought to him in the flesh by a fisherman, who had captured it on the sheet of his boat when seven miles at sea off the headland, on the 8th of May, 1877.

LANIUS AURICULATUS *P.L.S.Muller.*

Woodchat Shrike.

A very rare summer visitant.

This species has occurred in Yorkshire—so far as I have been able to ascertain—on two occasions only, and I greatly regret my inability to give full particulars of them; for details respecting so rare a visitant to Britain, and so fine a species, would be most acceptable to all interested in Yorkshire ornithology. Mr. Yarrell in the first edition of his British Birds (vol. i., p. 161), published in 1843, states that "a few years ago Mr. Leadbeater received a specimen which had been killed in Yorkshire." Professor Newton in his edition of that work (1871) mentions its having been met with in Yorkshire, no doubt referring to the same specimen. Mr. A. Roberts, of Scarborough, informs me that in the year 1860 or 1861, Mr. Alwin S. Bell obtained two young birds in the Castle Holmes, Scarborough; but he (Mr. Bell) only succeeded in preserving one of them, owing to their being so very fat.

PASSERES. *MUSCICAPIDÆ.*

MUSCICAPA GRISOLA *L.*

Spotted Flycatcher.

A common summer visitant.

A common and generally distributed species, arriving during the first fortnight of May, leaving again in September. It is well known for its habit of returning to favourite breeding haunts, and

for the frequency with which it makes choice of curious sites for its nest. It is also one of the few birds to be found in our town gardens.

A variety obtained near Wath-upon-Dearne in August, 1870, is described by Dr. H. Payne as having "the upper plumage and tail whitish fawn, the under parts nearly white."

MUSCICAPA ATRICAPILLA *L.*

Pied Flycatcher.

A local summer visitant.

Of this conspicuous bird, whose distribution in Britain as a summer resident is exceedingly limited, Yorkshire is one of the chief headquarters and perhaps the most southern county in which its occurrence in any numbers can be considered regular.

The localities in which this species annually breeds are entirely confined to the North and West Ridings of the county, and its choice of them shows a strong predilection for the combination of woodland and water, preferring as it does either deeply wooded river valleys or woods in close proximity to extensive sheets of water.

In the North Riding it nests annually about Barnard Castle in Teesdale; in the woods at Castle Howard; and at Duncombe Park, Helmsley, and Hovingham in Ryedale. In Wensleydale, which is in both Ridings, it is known to breed on the banks of the Ure near Masham, Danby and Hackfall. Bolton Woods are its chosen resort in Wharfedale; while in Nidderdale it visits the woods at Bewerley and Harefield near Pateley Bridge (in which locality Mr. Joseph Lucas observed that two broods were hatched in 1869, the second being on the 15th of July). Other localities annually resorted to in the West

Riding are Stainborough Woods and those at Cannon Hall, both near Barnsley. In these Ridings it has also been reported as breeding occasionally and singly near Halifax, Sheffield, Huddersfield, Hebden Bridge, Bradford and Scarborough. In 1811 the Rev. James Dalton, a noted naturalist in his time, found it breeding at Copgrove (near Boroughbridge); and in 1844 Ovenden (near Halifax), Harewood and Studley were quoted as breeding stations by Mr. Thomas Allis. I have no information of their now being frequented.

In the East Riding it can only rank as a casual visitor at the period of migration. I have prosecuted strict inquiries as to its ever having bred in this division of the county, but have failed to learn that it has done so in even a single instance. An interesting and unusual occurrence took place at Flamborough on the 3rd of May, 1866, and two following days; several specimens of both sexes in mature and immature plumage were shot out of a large flock by Mr. Bailey, to whom I am indebted for the information. Mr. Cordeaux informs me that it occurs at Spurn during the vernal migration.

PASSERES. *ORIOLIDÆ.*

ORIOLUS GALBULA *L.*

Golden Oriole.

A rare casual visitant.

This beautiful species can only be regarded as a rare straggler in Yorkshire at the period of its spring and autumn movements, when the few specimens observed have doubtless accidentally deviated from their accustomed line of migration.

In the spring of 1834 a fine female was killed near the Spurn lighthouse, and came into the possession of Mr. Arthur

Strickland. Mr. Allis in enumerating this occurrence in 1844, remarked that it appeared to be the only Yorkshire specimen known.

One was shot at Boat Bottom near Wakefield, during the first week of August, 1856, which Mr. Wm. Talbot saw in the flesh and describes as being in splendid plumage.

In May, 1859, Mr. Roberts of Scarborough had brought to him for preservation a male in the finest adult plumage, which had been shot on Admiral Mitford's estate at Hunmanby (Zool., 1859, p. 6561). A specimen in the museum at Scarborough, and another in a private collection, Mr. Roberts tells me are said to have been obtained near that town.

The Rev. J. W. Chaloner of Newton Kyme informs me that he observed on the 28th of April, 1870, a fine male specimen whilst driving on the North Road, a short distance out of Doncaster, the bird flying between the conveyance and the roadside hedge for a distance of two hundred yards. About the same date one was observed in Grimston Park, near Tadcaster, by Hamer the keeper. For the information relating to this occurrence I am also indebted to the Rev. Mr. Chaloner.

Regarding the occurrence of one near Bingley, about the end of August or beginning of September, 1875, Mr. Butterfield of Wilsden writes me that a gamekeeper, on whose veracity he can rely, gave him a description of a bird which was no doubt a Golden Oriole. It was flying in company with some thrushes.

The Hull Museum Guide (1860) informs us that "specimens have been seen near Hull," and Mr. Cordeaux, in his Birds of the Humber District (1872), mentions that a pair in the collection of Mr. W. W. Boulton are said to have been shot on the east coast, Mr. Boulton considering the authority a fairly reliable one.

in every direction, and equally abundant by day and night. Mr. J. T. Carrington found the sandhills on the Essex coast infested by them; "it was no uncommon thing to see ten to twenty specimens fighting with one another to get at a single thistle flower." The sea at St. Leonards was scattered over with the moths, which were being washed up in lines on the shore. Mr. H. Ramsay Cox recorded from Ostend, hundreds of thousands of *Plusia gamma* "in shoals everywhere," whilst "*Pyrameis cardui* was flitting in hundreds up and down the streets, and on the sandhills, where there is not a stick of anything green." These are a few of the records from the southern counties: both species spread over our northern counties, though, as we should expect, in much smaller numbers. In Yorkshire we had our share. *Vanessa cardui*, though not near so abundant as elsewhere, occurred in early summer in unusual numbers all over it, and it is needless to particularize localities. A rather singular circumstance, however, is that no larvæ appear to have been noticed afterwards; though we, and doubtless others, searched carefully for them. As a consequence the autumn specimens did not appear more numerously, perhaps not even as plentifully as the earlier hibernated specimens. We are inclined to suppose that our early summer specimens were part of the southern invasion, and had probably deposited their eggs before reaching our county: otherwise we think the autumn specimens must have been proportionately more plentiful, as they were in the south. *Plusia gamma* too, though plentiful enough with us, never became the pest it proved to be in some counties. The south-West Riding was probably freer from it than anywhere, but in various parts of the county it abounded, notably so at Riccall Common near Selby, on the occasion of the Union's visit in September.

NOTICEABLE RECORDS.

The following species may be named:—

Thecla W-album. At Edlington Wood, near Doncaster, as usual; by Mr. William Prest and others.

Liparis monacha. At Selby on the occasion of the Union's visit to Riccall Common in September.

Orgyia fascelina. Larvæ collected at Spurn by Mr. Hewetson.

O. gonostigma. Larvæ on birch at Askham Bog, on the Union's visit there on June 2nd.

Ennomos fuscantaria. In the larval state on ash, on the road to Doncaster, by Mr. S. D. Bairstow, August 4th.

E. angularia. At Edlington Wood in September, by Mr. W. Prest.

Phorodesma bajularia. At Edlington Wood, August 4th.

Asthena luteata. At Bramham, June 28th, by Mr. George Tyers, of Leeds.

A. sylvata. This local moth occurred in abundance at Edlington Wood, to Mr. John Harrison, of Barnsley.

Eupisteria heparata. Taken by Mr. George Tyers, at Seven Arches, Leeds.

Venusia cambricaria. Taken in great abundance in the Bingley district by the Messrs. Butterfield; the specimens were much finer and larger than in the previous year.

Acidalia fumata. Common near Bingley, Mr. Butterfield.

Timandra amataria. Edlington on August 4th, Yorkshire Naturalists' Union.

Larentia salicata. Taken very freely in the Saltaire and Bingley district by Messrs. J. W. Carter, Firth and Butterfield.

Eupithecia lariciata. Taken at Bishops Wood, near Selby, on May 30th, by Mr. S. D. Bairstow; and at Seven Arches, near Leeds, by Mr. George Tyers.

Melanthia rubiginata. This pretty little species swarmed on some of the stream sides around Bradford, Mr. J. W. Carter.

Anticlea rubidata. At Edlington Wood, August 4th, Yorkshire Naturalists' Union.

Scotosia vetulata. Also at Edlington Wood, the Union's Excursion there on the August Bank Holiday.

Notodonta chaonia. Larvæ found on oaks by myself in Edlington Wood, on August 4th.

Thyatira derasa. At sugar at Hambleton in July, by Mr. George Tyers.

Cymatophora fluctuosa. By beating birches, &c., in Wharncliffe Wood, by Mr. James Varley of Huddersfield.

Acronycta leporina. At Barnsley.

A. menyanthidis. At Shipley, by Mr. J. W. Carter; and at Riccall Common, by Mr. C. W. Richardson.

Calamia lutosa. At Spurn, by Mr. W. E. Clarke of Leeds.

Xylophasia scolopacina. Taken freely in Haw Park near Wakefield, by Messrs. Wilson and C. W. Richardson; also less commonly at Hambleton, by Mr. George Tyers.

Agrotis aquilina. At York, by Mr. Thomas Wilson.

Aplecta occulta. This fine species seems to have been taken at York and near Sheffield.

Hadena suasa. At York, by Mr. Wilson.

Hypenodes costæstrigalis. At York, by Mr. Wm. Simmons.

Ebulea crocealis. At Edlington, August 4th, Yorkshire Naturalists' Union.

Spilodes sticticalis. This rather local species is recorded from York by Mr. Wilson.

VARIETIES, ETC.

It is said, and I believe truly, that a cold, wet, sunless season is usually productive of a great many varieties; and this year some very interesting forms have occurred. Of the very pretty olive-green form of *Thigalia pilosaria* several were secured during spring in the Bradford district; and the same neighbour-

hood also produced two more *Abraxas grossulariata* var. *Varleyata;* whilst Mr. Butterfield took a very peculiar dark *Larentia multistrigaria* at Bingley. Amongst noctuæ Mr. S. L. Mosley obtained a very pale and unusual form of *Cymatophora flavicornis* in the Black Fir Wood, Huddersfield, which seems to be the only variety recorded which was paler than the ordinary type. The variety *infuscata* of *Xylophasia polyodon* was taken by myself and others; an almost jet black specimen from Sheffield being about the best I ever saw. And, lastly, a very beautiful nearly black specimen of *Polia flavocincta* was, I believe, the only moth of any description that visited the sugared trees in the shrubbery adjoining my house on the night of September 17th.

During the year Mr. Mosley has issued three more Parts (III., IV. and V.) of his "Illustrations of Varieties of British Lepidoptera," which fully sustain the opinion we gave of them last year. The plates of *Abraxas grossulariata* and *A. ulmata* contained in Part IV. cannot but be pronounced by every unbiassed judge as exquisite.

Highroyd House, Huddersfield.

YORKSHIRE MACRO-LEPIDOPTERA IN 1880.

By G. T. PORRITT, F.L.S., HUDDERSFIELD,
President of the Entomological Section, 1880.

The lepidopterists of our county will I think be fully agreed, that the season of 1880 was a decided improvement on the several years preceding it; but even then it has been, taking the county through, by no means what it should have been; for in some parts—of the West Riding more particularly—complaint has still been loud that "there are no moths to be found." On the other hand Mr. Prest, writing from York on August 20th, said "I have taken more insects this year than any season I have collected."

The feature of the year has been the occurrence in unusual numbers of *Aplecta occulta* in different parts of the county, frequently in quite new districts, or else in almost every case in places where it had not been seen for many years before. Previously indeed it had been a great rarity with us, but last August Mr. Prest took at Sandburn near York, as many in one night as probably had ever occurred in the county in a whole season before.

The season has been followed by a terribly severe winter, one of what our grandfathers term "the old-fashioned sort," though even they all confess to never having experienced its like. We seem to have been ice and snow-bound for months; and although April is now on us again, it is as cold as it was in January. After it we are all expecting a really good season, indeed there seems to be a conviction in everybody's mind that such will be the case. May it prove so.

SPECIES NEW TO THE COUNTY.

After two years without, another species has been added to

the county list, and a very interesting one, viz. :—

Mamestra abjecta.

It is thus announced by Mr. N. F. Dobrèe of Beverley, in the "Naturalist" of November last :—"A Yorkshire rarity, I believe, is *Mamestra abjecta*, of which I took eleven at the mouth of the Humber in August this year, and to my certain knowledge missed three more. From the locality I judge they may be always found there. On the same occasion I took the finest series of *Agrotis cursoria* I have ever seen. Both these and *Ripæ* are much darker in Yorkshire than are southern specimens.

NEW LOCALITIES.

There are only thirteen, the smallest number since the record of them was commenced in the Transactions.

Species.	*New Localities.*	*Recorder.*
Sesia culiciformis	...York	...W. Prest.
Zeuzera æsculi	...York	...W. Prest.
Venilia maculata	...Bradford	...J. W. Carter.
Ennomos angularia	Bradford	...J. W. Carter.
Asthena sylvata	...Barnsley	...John Harrison.
Larentia ruficinctata	Bradford	...J. W. Carter.
Thyatira batis	...Saltaire, Bradford	...Wm. Wardman.
Xanthia silago	...Bradford	...J. W. Carter.
Aplecta occulta	...Barnsley	...W. E. Brady.
„	...Shipley Glen, Bradford	Messrs. Wardman and Dawson.
„	...Hull	...N. F. Dobrèe.
„	...Whitby	...C. Dashwood Snell.
Catocala fraxini	...Barnsley	...Dr. White.

RARITIES IN 1880.

Four species seem entitled to a position under this heading. Of the grand butterfly, *Vanessa Antiopa*, four examples have been noticed—two at York, and two at Bradford. Of the former pair, the first was taken on September 17th by Mr. Skilbeck, in a

garden in Holgate; and the other was seen on September 27th in Backhouse's Nurseries by Mr. T. Wilson, but unfortunately not captured, although it settled within six yards of him. Nor were either of the Bradford specimens secured. Mr. J. W. Carter saw one at Lister Park on September 26th; the other was flying and resting on geraniums in a garden at Manningham, also in September.

Larentia ruficinctata, already alluded to as new to Bradford, is a great Yorkshire rarity, and our county is also its most southerly range; but it is common enough in many parts of Scotland. *Aplecta occulta* too has already been alluded to at length. It seems to have occurred in all parts of the county, but singularly we have heard but little of its occurrence in unusual numbers elsewhere. Most of the specimens were taken at sugar during the third week in August, oddly enough when north-east winds, which are usually considered fatal for sugaring purposes, for the most part prevailed. Mr. Prest took it in abundance at York, though there were previously only about three specimens known to have occurred there. The Rev. G. C. B. Madden took it at Huddersfield, where it had not been seen for towards twenty years. Mr. N. F. Dobrèe records thirteen specimens at Hull; and there is little doubt it was distributed throughout the county.

The rarity of the year, *Catocala fraxini*, was taken in beautiful condition by Dr. White at sugar in his own garden at Barnsley on September 6th.

NOTICEABLE RECORDS.

These include several very interesting species, as will be seen from the following list.

Thecla W-album. I again found this species tolerably common in its old locality, Edlington Wood, on July 31st.

Zeuzera æsculi. A specimen from Mapplewell near Barnsley, is recorded by Mr. W. D. Roebuck.

Cossus ligniperda. Is reported from Barnsley; and was

also found in the larval state on the occasion of the Union's Excursion to Market Weighton, September 4th.

Trichiura cratægi. Larvæ recorded at York by Mr. T. Wilson.

Pœcilocampa populi. Found in the larval state at Edlington Wood by Mr. T. Wilson; and Mr. J. W. Speck took an imago on a lamp post at Leeds in November.

Pericallia syringaria. At York by Mr. Prest; also from Barnsley.

Ennomos erosaria. At York by Mr. T. Wilson.

Amphydasis prodromaria. Bred by Mr. S. D. Bairstow from a pupa dug at Edlington Wood the previous autumn.

Boarmia roboraria. Several at Bishops Wood in July, by Mr. Prest.

Geometra papilionaria. At York by Mr. Prest.

Asthena sylvata. Very abundant at Edlington Wood in June, by Messrs. John Harrison and W. Prest.

Venusia cambricaria. At Wharncliffe, Mr. C. Smethurst.

Acidalia immutata. York, Mr. T. Wilson.

Eupithecia lariciata. At Huddlestone, Mr. C. Smethurst; and at Wentbridge, Mr. George Tyers.

E. pimpinellata and **E. fraxinata.** At York by Mr. T. Wilson.

E. indigata. Abundant at York by Mr. Prest.

Lobophora lobulata. Also abundant at York by Mr. Prest.

Hypsipetes ruberata. At York by Mr. Wilson.

Melanippe hastata. Exceedingly plentiful this season. At New Park Spring Wood near Cudworth, by Messrs. C. W. Richardson and others on the occasion of the Union's Excursion to Barnsley on June 12th; also at Edlington Wood by Messrs. John Harrison and W. Prest; Wharncliffe, Mr. C. Smethurst; &c.

Scotosia undulata. At York by Mr. Prest

Eubolia cervinaria. Wetherby, Mr. Smethurst.

Notodonta dictæa. At York by Mr. T. Wilson.

N. dictæoides. At Lunn Wood, Barnsley, June 21st, by Mr. W. E. Brady; and at York by Mr. Prest.

N. dromedarius. At Edlington Wood, Doncaster, by myself; and larvæ rather commonly at Wakefield, by Mr. C. W. Richardson.

N. trepida. At York by Mr. Prest.

N. chaonia. Bred by myself from larvæ taken at Edlington the previous autumn.

Cymatophora fluctuosa. At Barnsley again; also at Wharncliffe Woods as usual, Mr. C. Smethurst.

Acronycta tridens and **A. leporina.** Both at York by Mr. Wilson.

Hydræcia petasitis. Wakefield, Mr. C. Smethurst.

Xylophasia scolopacina. Taken freely at sugar in Haw Park, Wakefield, by Mr. C. W. Richardson and others.

Celæna Haworthii. Noticed in great abundance by myself amongst cotton grass on the damp moors at Marsden in September.

Agrotis saucia. Taken at sugar, October 20th, at York, by Mr. Wilson.

A. agathina. Larvæ at Meanwood near Leeds, Mr. W. H. Taylor.

Trachea piniperda. Near Blackmoor, Leeds, by Mr. Walter Buckton.

Orthosia suspecta. Taken in great plenty at Sandburn, York, by Mr. Prest; also less commonly at Butter Nab Wood, Huddersfield, by the Rev. G. C. B. Madden and myself in August.

Dasypolia templi. This species, after having been scarce for some years, again turned up plentifully around Huddersfield. Some hundreds must have been taken. I myself had sixty-two specimens brought to me.

Aplecta herbida. At York by Mr. Prest.

Pyralis glaucinalis. At York by Mr. Wilson.

Scoparia basistrigalis. I again took this species in Edlington Wood on July 31st, but not so freely as in the previous year.

S. truncicolalis. In abundance at Sandburn Wood, York, in August by Mr. Prest.

S. coarctalis. Taken at Blake Lee, Marsden, at the Union's Excursion there on Bank Holiday, August 2nd.

Cryptoblabes bistriga. Taken at rest on an oak at York by Mr. Wilson.

VARIETIES, ETC.

Usually Yorkshire is well represented in extreme aberrations, but this year there has evidently been a dearth, as we have heard of no extraordinary forms having turned up. In spring the unicolorous very dark form of *Hybernia progemmaria* was again common at Huddersfield, and Mr. S. L. Mosley has named it variety *fuscata*. Mr. Richardson says it also occurs freely in the Wakefield district. A very dark olive, in some cases nearly black form of *Phigalia pilosaria* too, appears to be getting commoner; several occurred at Leeds to Messrs. Smethurst and Henry Marsh, and also rather commonly at Bradford to Messrs. J. W. Carter and Hodgson. Another interesting discovery I made through correspondence with Mr. W. F. Kirby, is that the form of *Polia flavocincta* which is abundant in the Huddersfield district, and no doubt in other parts of the county, is not the ordinary type of the species, but the variety *meridionalis* of Boisduval, a variety which had not previously been recorded as occurring in Britain at all. A somewhat analogous case occurs in *Scoparia Zelleri*. It is now generally admitted that this is merely a variety of *Scoparia cembræ*, and singularly the Huddersfield specimens, of which I have taken many hundreds, seem to be nearly all of the form *Zelleri*, the few exceptions being still another variety, viz.:—Dr. F. B. White's

scotica. I am doubtful if the ordinary type *(cembræ)* occurs in Huddersfield district at all, and should be pleased to see specimens from other parts of the county with a view of ascertaining what its range with us really is. In conclusion, I would ask the members of our section to make careful observations and notes in case of any persistent local variations they may come across. The study is a much more useful one, and surely as interesting, as the breeding of odd extraordinary varieties, whose chief value to their possessors depends entirely on neither themselves nor anyone else being able to capture or breed similar ones.

THE YORKSHIRE LIST.

We had hoped to have had this out by this time, but had miscalculated the time it would take to get in all the district-lists and records, which have been constantly accumulating, and in the end the delay will undoubtedly have been an equal gain to the list and consequently to the members of our Union.

Highroyd House, Huddersfield, April, 1881.

YORKSHIRE HYMENOPTERA:

THIRD LIST OF SPECIES,

BASED UPON OBSERVATIONS MADE IN 1879, 1880 AND 1881.

BY

S. D. BAIRSTOW, F.L.S.,

Of Port Elizabeth, Cape Colony, formerly Secretary of the Entomological Section of the Yorkshire Naturalists' Union;

W. DENISON ROEBUCK, LEEDS,

Joint-Secretary of the Yorkshire Naturalists' Union;

AND

THOMAS WILSON, YORK.

[Since the publication of my last report good work has been done in the investigation of the insects of this order in Yorkshire, the result being that the present paper is the means of adding to the previously known fauna of the county about a hundred species, the bulk of them being Tenthredinidæ and Ichneumonidæ The great preponderance of these additions we owe to the labours of our new collaborator, who has for three seasons diligently and successfully worked the country which lies within about 6 miles west and south-west of the city of York. Portions of the results have been published by him in the Naturalist and the Entomologist; these records are incorporated, in order that the papers in the present Transactions may include the whole of what is known upon Yorkshire Hymenoptera, in continuation of my first report. —W. D. R.]

Family TENTHREDINIDÆ—Sawflies.

[In the Entomologist for April, 1881, vol. xiv., pp. 88—91, Mr. Thomas Wilson published a paper entitled "Tenthredinidæ near York," in which he placed on record the results of his investigations in 1879 and 1880. To these are added in the present list numerous records made by him in 1881, which have not before been published. The Sawflies which he collected

were determined for him by Mr. J. B. Bridgman, and some by Mr. E. A. Fitch. The list includes also records of species which have been named for myself by Mr. Peter Cameron.

The list of Yorkshire Tenthredinidæ having been very much enlarged through Mr. Wilson's labours I have judged it advisable to present here a complete catalogue of the known Yorkshire species, distinguishing with a cross (×) those which appear for the first time, and referring to my past report in the case of those before recorded. It is the more necessary to give the complete list on account of certain rectifications in the nomenclature of my first report which are required. The arrangement and nomenclature are according to Mr. Cameron's catalogue of British Tenthredinidæ.—W. D. R.]

TENTHREDINA.

Tenthredo livida *L.* See first list, p. 27: second list, p. 64.

At York in 1879 and 1880, occurred amongst the tall rank herbage which grows luxuriantly along ditch-sides. In such places *Heracleum sphondylium* and *Spiræa ulmaria* grow, and it is fond of settling on the leaves of those plants (Wilson, Entom., p. 89).

Abundant about Huddersfield and Edlington Wood near Doncaster, where it was noticed in August, 1879: specimens collected by Mr. Bairstow in these localities were named by Mr. Cameron (Roebuck).

× **T. atra** *L.* One specimen near York, 1879 or 1880 (Wilson, Ent., p. 90).

T. zonata *Pz.* See first list, p. 27.

× **T. bicincta** *L.* Four examples (two males and two females) of this pretty species taken near York in 1881, on flowers of *Heracleum sphondylium* (Wilson).

T. mesomela *L.*=**viridis** *Kl.* nec *L.*

Mr. Cameron informs me that the records given in the first list (see p. 27 of this vol.) under the name of *T. viridis* L., are in all probability referable to this species (W. D. R.)

One specimen occurred near York in 1879 or 1880 (Wilson, Ent., p. 90).

× **T. olivacea** *Kl.* Specimens collected near Huddersfield by Mr. S. D. Bairstow in 1879 were named by Mr. Cameron.

× **T. punctulata** *Kl.* Was common round York during 1880 and was found in similar situations to *T. livida* (Wilson, Ent., p. 89).

× **T. gibbosa** *Fall.* Two specimens taken near York, 1879 or 1880 (Wilson, Ent., p. 90).

× **Tenthredopsis dimidiata** *Fab.* Two in Acomb Wood near York, 1881 (Wilson).

× **T. scutellaris** *Fab.* York, 1881, captured four in oak wood (Wilson).

T. nassata *(L.)* See first list, p. 27 (as *Perineura nassata*).

York, I found this insect in similar situations to *T. livida*. In 1879 I took two specimens and might have taken more, but thought it was a common species. I did not see any during 1880, though I looked for it several times (Wilson, Ent., p. 90). Two examples in 1881, at Holgate (Wilson).

× **Pachyprotasis rapæ** *(L.)* Two examples near York in 1879 or 1880 (Wilson, Ent., p. 90).

Macrophya blanda *(Fab.)* See first list, p. 27.

M. neglecta *(Kl.)* See first list, p. 27.

Two specimens of this handsome species—male and female —Acomb Wood, 1881 (Wilson).

× **Allantus tricinctus** *(Fab.)* Three specimens found near York in 1879, on the umbels of *Heracleum sphondylium* (Wilson, Ent., p. 90).

A. arcuatus *(Forst.)*=**nothus** *(Kl.)* See first list, p. 27 (under names of *Tenthredo arcuatus* and *Allantus nothus*).

Six specimens found near York in 1879, on the umbels of *Heracleum sphondylium* (Wilson, Ent., p. 90).

× **Sciopteryx costalis** *Fab.*

Taken near Leeds in the spring of 1879 by the late W. P. Weston. For this record I am indebted to Mr. E. A. Fitch, who named the specimens (Roebuck).

× **Athalia ancilla** *Lep.* York, 1881, I met with seven of this interesting species. It occurs singly on a variety of plants round this neighbourhood (Wilson).

A. spinarum *(Fab.)* See first list, p. 27.

A. rosæ *(L.)* See first list, p. 27, second list, p. 64. Two specimens taken near York in 1879 or 1880 (Wilson, Ent., p. 90).

Dolerus pratensis *(L.)* See first list, p. 28. One, Holgate, 1881 (Wilson).

D. lateritius *Kl.* See first list, p. 28.

× **D. palustris** *Kl.* One near York in 1879 or 1880 (Wilson Ent., p. 90).

D. gonager *Kl.* See first list, p. 28.

Taken near Leeds in the spring of 1879 by the late W. P. Weston, and named by Mr. E. A. Fitch (Roebuck).

Huddersfield specimens taken by Mr. S. D. Bairstow in 1879, named by Mr. P. Cameron (Roebuck).

One specimen near York in 1879 or 1880 (Wilson, Ent., p. 90).

D. niger *(L.)* See first list, p. 28. York, 1881, two specimens found in wood (Wilson).

× **D. cenchris** *Htg.* Taken near Leeds in the spring of 1879 by the late W. P. Weston and named by Mr. E. A. Fitch (Roebuck). Near York, 1879 or 1880, four specimens amongst nettles (Wilson, Ent., p. 90).

× **Pœcilosoma submutica** *Thoms.* Holgate, 1881, two examples (Wilson).

× **P. excisa** *Thoms.*

A specimen taken at Storthes Hall near Huddersfield in 1879 by Mr. S. D. Bairstow is pronounced by Mr. Peter Cameron and M. Ed. André to belong to this species (*cf.* E.M.M., xvi. 119, and xvi. 250, April 1880).

× **Taxonus equiseti** *(Fall.)* Holgate, 1881, bred from *Rosa canina* stems, having pupated in the pith (Wilson).

× **T. glabratus** *(Fall.)* Holgate, 1881, flying amongst poplars (Wilson).

× **Emphytus cinctus** *(L.)* Near York in 1879 and 1880, found amongst briars (Wilson, Ent., p. 90).

E. carpini *Htg.* See first list, p. 28.

× **E. perla** *Kl.* York, 1879: I have also taken two examples of *Emphytus perla* Kl., which, Mr. Bridgman says, is very rare. I do not remember where I got them, but think I beat them out with larvæ, as I found them in my room (Wilson, Ent., p. 90).

× **Cœnoneura dahlbomi** *Thoms.* Mr. Peter Cameron informed me in 1879 that he has specimens from North Yorkshire (Roebuck).

Selandria serva *(Fab.)* See first list, p. 27, second list, p. 64. The *S. dorsalis* of Stephens, mentioned at p. 27, is also probably referable to this species, as Mr. Cameron informs me (Roebuck).

Near York, three specimens bred in 1879 or 1880 (Wilson, Ent., p. 90).

× **S. flavescens** *(Kl.)* Near York, bred in 1879 or 1880, "two specimens of what I take to be *Selandria flavescens* Kl." (Wilson, Ent., p. 90).

S. stramineipes *(Kl.)* See second list, p. 64.

× **Eriocampa ovata** *(L.)* Two examples amongst alders near York in June, 1879 or 1880 (Wilson, Ent., p. 90).

× **E. annulipes** *(Kl.)* From poplars, Holgate, 1881 (Wilson).

E. adumbrata *(Kl.)* See first list, p. 28.

Blennocampa pusilla *(Kl.)* See first list, p. 28.

B. alchemillæ *Cam.* See first list, p. 28.

× **B. nigrita** *(Fab.)*=**nigerrima** *(Kl.)*

One example of *Monophadnus nigerrimus* (Kl.) occurred near

Orthotrichum leiocarpum *B. & S.* York, R. S.

O. Sprucei *Mont.* Trees by Derwent, near Kirkham, M. B. S. Near York, frequent, R. S.

Tetraplodon angustatus *L. fil.* Bog near Cottingham, R.T.

Ephemerum (=*Phascum*) **serratum** *Schreb.* Beverley, R. T. York, in gardens, R. S.

Physcomitrium pyriforme *L.* York, R. S. Brantingham, H. F. P.

Entosthodon ericetorum *Bals.* Langwith Moor, R. S.

Funaria fascicularis *Dicks.* Langwith Moor, R. S.

F. hygrometrica *L.* Everywhere, R. S. Welton, &c., H. F. P.

Philonotis fontana *L.* M. B. S.

P. calcarea *B. & S.* Newbald, H. F. P.

Breutelia arcuata *Dicks.* Houghton Moor (*Withering*). Langwith Moor, R. S.

Webera nutans *Schreb.* Riccall Common, H. F. P.

W. annotina *Hedw.* Sand Hall near Howden, and Holme, H. F. P. Langwith Moor (in fruit), R. S.

W. carnea *L.* York, R. S. Holme and Welton, H. F. P.

W. albicans *Wahl.* Langwith Moor, R. S. Skipwith, H. F. P.

Bryum pendulum *Hornsch.* Walls near York, rare, R. S.

B. inclinatum *Swartz.* Walls near River Derwent, R. S.

B. uliginosum *Bruch.* Heslington Fields, R. S.

B. bimum *Schreb.* With last, R. S.

B. erythrocarpum *Schwg.* Barmby and Woodhouse Moors, R. S.

B. atro-purpureum *W. & M.* Langwith Moor, R. S.

B. cæspititium *L.* York, R. S. Welton and Holme, H. F. P.

B. argenteum *L.* York, &c., R. S. Welton, H. F. P.

B. capillare *L.* York, Elvington, &c., R. S. Riccall, H. F. P.

B. pallens *Swartz.* Langwith Moor and Heslington, R. S.

Mnium undulatum *Hedw.* Hedgerows, sterile, R. S. Brough, H. F. P.

M. rostratum *Schrad.* Woods, R. S. Holme, H. F. P.

M. hornum *L.* Woods towards Derwent, R. S. Cliff and Welton, H. F. P.

M. punctatum *Hedw.* Bog near Heslington, R. S. Cliff, H. F. P.

Aulacomnium androgynum *L.* Langwith Moor, R. S. Lund, H. F. P.

A. palustre *L.* Langwith Moor, R. S. Riccall Common (in fruit), H. F. P.

Tetraphis pellucida *L.* Kennythorpe Moor, M. B. S. Langwith Moor, in fruit, R. S. Cliff Wood, H. F. P.

Atrichum undulatum *L.* York, R. S. Cliff, H. F. P.

Pogonatum nanum *Neck.* Langwith Moor, R. S.

P. aloides *Hedw.* Langwith Moor, R. S.

P. urnigerum *L.* York, sandy hollows, R. S.

Polytrichum formosum *Hedw.* Woods east of York, R. S.

P. piliferum *Schreb.* Barmby, Langwith, and other Moors, R. S. Holme, H. F. P.

P. juniperinum *Hedw.* Barmby, Langwith, and other Moors, R. S. Riccall, H. F. P.

P. commune *L.* Barmby, Langwith, and other Moors, R. S. Holme, H. F. P.

(*P. gracile* should be looked for.)

Fissidens bryoides *Hedw.* York, R. S. Cliff and Welton, H. F. P.

F. incurvus *Schwg.* York, R. S.

F. adiantoides *Hedw.* Banks of Ouse and Derwent, R. S. Drewton, H. F. P.

F. taxifolius *L.* Near Howsham, M. B. S. Welton and North Duffield, H. F. P.

Cinclidotus fontinaloides *Hedw.* Streams running to Derwent, R. S. River Ouse, Barlby, H. F. P.

Fontinalis antipyretica *L.* Brough, H. F. P.

Cryphæa heteromalla *Hedw.* Sledmere and Flambro', M. B. S. Brantingham and Market Weighton, H. F. P.

Leucodon sciuroides *L.* York, R. S. Howsham, M. B. S. Howden, H. F. P.

Neckera crispa *L.* Woodale near South Cave, H. F. P.

N. complanata *L.* Woods near York, R. S.

Homalia trichomanoides *Schreb.* Woods by Derwent, R. S. Cliff Wood, H. F. P.

Myrinia pulvinata *Wahl.* East bank of Ouse below York, R. S.

Leskea polycarpa *Ehrh.* Beverley, R. T. Near Laysike, M. B. S. Riccall, H. F. P.

Thuidium tamariscinum *Hedw.* York, &c., R. S. North Duffield, H. F. P.

Thamnium alopecurum *L.* Woods near York, R. S. Cliff Wood and Beverley, H. F. P.

Climacium dendroides *L.* Bog near Heslington, R. S. Skipwith, H. F. P.

Pylaisia polyantha *Schreb.* York, R. S.

Isothecium myurum *Poll.* York, R. S. Cliff Wood, H. F. P.

Homalothecium sericeum *L.* Sledmere, &c., M. B. S. Barlby, H. F. P.

Camptothecium lutescens *Huds.* York and Kirkham, R. S. Welton, H. F. P.

Scleropodium cæspitosum *Wils.* York, on tree roots by River Ouse, R. S.

Brachythecium glareosum *B. & S.* Near York, frequent, R. S.

B. albicans *Neck.* York and Grimston, R. S. Holme, H. F. P.

B. velutinum *L.* Eddlethorpe, M. B. S. Riccall, H. F. P.

B. rutabulum *L.* Sledmere, &c., M. B. S. Welton, &c., H. F. P.

B. populeum *Hedw.* Kirkham, R. S.

Eurhynchium myosuroides *L.* Firby Wood, R. S. Riccall, H. F. P.

Eurhynchium striatum *Schreb.* Hedgebanks, R. S. Riccall and Welton, H. F. P.

E. piliferum *Schreb.* Firby Wood, R. S. Brantingham, H. F. P.

E. Swartzii *Turn.* Shady banks, east of York, R. S. Holme and Brough, H. F. P.

E. prælongum *Dill.* Kirkham, Langwith, &c., R. S. Welton and Riccall, H. F. P.

E. Teesdalii *Smith.* Beverley, R. T.

Rhynchostegium depressum *Bruch.* Firby Wood, R. S.

R. confertum *Dicks.* Firby Wood, R. S. Riccall, H. F. P.

R. murale *Hedw.* Westow, &c., R. S. Burythorpe, M. B. S. Ellerker, H. F. P.

R. rusciforme *Weis.* River Derwent, Kirkham, &c., R. S. Welton, H. F. P.

Plagiothecium denticulatum *L.* Langwith, &c., R. S. Lund, H. F. P.

P. Borrerianum *Spruce* (=**elegans** *Auct.* non *Hooker*). Cliff Wood, H. F. P.

P. sylvaticum *L.* Sledmere, M. B. S.

P. undulatum *L.* Cliff Wood and Holme, H. F. P. Elvington, R. S.

Amblystegium serpens *L.* Eddlethorpe, M. B. S. Drewton, H. F. P.

A. irriguum *Wils.* Kirkham Locks, R. S. Near Welham, M. B. S.

A. riparium *L.* Heslington Fields, R. S. Brantingham, H. F. P.

Hypnum aduncum *Hedw.* Barmby Moor, R. S.

H. Sendtneri *Schp.* Newbald and Skipwith, H. F. P.

H. fluitans *L.* Skipwith, H. F. P.

H. filicinum *L.* Kennythorpe Moor, M. B. S. York, R. S. Welton, H. F. P.

Hypnum commutatum *Hedw.* Drewton, H. F. P.

H. imponens *Hedw.* Skipwith Common, H. F. P.

H. cupressiforme *L.* Birdsall, Howsham, &c., M. B. S.
Riccall, &c., H. F. P.

κ. **resupinatum.** York, R. S. Kelfield, H. F. P.

H. molluscum *Hedw.* Woods near the Derwent, R. S.
Welton, H. F. P.

H. palustre *L.* Laysike, M. B. S.

H. Sommerfelti *Myr.*
Kirkham Woods and Abbey, M. B. S. and R. S.

H. chrysophyllum *Brid.* Kirkham, R. S.

H. stellatum *Schreb.* Bog in Heslington Fields, R. S.
Brough, H. F. P.

H. polygamum *B. & S.* Bog in Heslington Fields, R. S.

H. cordifolium *Hedw.* Bog in Heslington Fields, R. S.
Beverley, R. T.

H. cuspidatum *L.* Meadows, &c., R. S.
In fruit at Holme and Brantingham, H. F. P.

H. Schreberi *Ehrh.* Langwith Moor, R. S.
In fruit at Holme, H. F. P.

H. purum *L.* York, &c., R. S. In fruit at Sledmere, M. B. S.
Welton, H. F. P.

H. stramineum *Dicks.* Riccall Common, H. F. P.

H. scorpioides *L.* Riccall Common, H. F. P.

Hylocomium splendens *Dill.* Heaths east of York, R. S.
In fruit at Holme, H. F. P.

H. squarrosum *L.* Meadows, &c., R. S.
Welton and Holme, H. F. P.

H. triquetrum *L.* Woods near York, R. S.
In fruit at Holme, H. F. P.

LIVERWORTS (HEPATICÆ) OF THE EAST RIDING.

By RICHARD SPRUCE, Ph.D., F.R.G.S.,
Coneysthorpe, Malton.

Plagiochila asplenioides *L.* Woods by the Ouse and Derwent, R. S. Welton Dale, H. F. Parsons.

Lophocolea bidentata *L.* Shady banks near York and elsewhere, R. S.

L. heterophylla *Schrad.* Decaying tree-stumps in Sledmere Woods, fruiting abundantly, M. B. Slater.

Scapania resupinata *L.?* (Dumort. Ekart. Carringt.; *S. nemorosa*, Syn. Hep. exp.,; *S. gracilis* Lindberg). Woods near the Derwent, R. S.

Diplophyllum albicans *L.* Banks, everywhere, R. S.

D. obtusifolium *Hook.* Langwith Moor, in fine fruit, R. S.

Var. **elegantula** *S., foliis spinuloso-dentatis, areolatione guttulata.* Langwith Moor, R. S.

Jungermannia exsecta *Schmid.* Langwith Moor, R. S.

J. incisa *Schrad.* Langwith Moor, R. S.

J. inflata *Huds.* On all wet moors, mostly sterile, but fruiting on Langwith Moor, R. S., and Skipwith Common, H. F. P.

J. ventricosa *Dicks.* Langwith and other moors, R. S. Beverley, R. Teesdale.

J. capitata *Hook.* Langwith Moor, in fruit, R. S.

J. bicrenata *Schmid.* Langwith Moor, in fruit, R. S.

Mylia Taylori *Hook.* Langwith and Barmby Moors, R. S.

Nardia scalaris *Schrad.* Sandy and heathy situations around York, R. S.

Chiloscyphus polyanthus *L.* Skipwith Common, H. F. P.

Odontoschisma sphagni *Dicks.* (*Sphagnœcetis*, Syn. Hep.). Barmby and other moors, R. S.

Cephalozia Francisci *Hook.* Langwith and Barmby Moors, in fruit, which is very rare, R. S.

Cephalozia divaricata *Sm.*
Moors and moist shady banks near York, R. S.

C. multiflora *Spruce. (Jung. connivens* auctorum Anglorum, pro parte, nec Dicks.) Houghton Moor, R. T.
Heaths, creeping on Sphagnum; Langwith, &c., R. S.

C. bicuspidata *L.* Moist shady places, everywhere, R. S.

Lepidozia reptans *L.* Heathy woods by the Derwent, R. S.

L. setacea *Web.* Langwith and Barmby Moors, R. S.

Blepharozia pulcherrima *Hoffm.* (*Ptilidium ciliare* L., var. *ericetorum* Syn. Hep.) Langwith Moor, R. S.
Houghton Moor, in fruit, R. T. Skipwith, H.F.P.

Kantia (*Calypogeia* Raddi; Syn. Hep.) **trichomanis** *L.*
Heathy banks near York, R. S.

Scalia (*Haplomitrium* Nees) **Hookeri** *Lyell.*
Barmby Moor, in fruit, very rare; 5th Nov., 1842, R. S.

Fossombronia pusilla *L.* With the last, R. S.

Radula complanata *L.* On trees, everywhere, R. S.

Frullania dilatata *L.* On trees, especially in orchards, R. S.

Pellia epiphylla *L.* Shady ditch-banks, everywhere, R. S.

P. calycina *Tayl.* Banks of Derwent, R. S.

Aneura multifida *L.* Kelfield, H. F. P.
Wet banks and rotting wood, York, &c., R. S.

A. pinguis *L.*
Banks of Ouse and Derwent, margins of brick ponds, &c., R. S.

Metzgeria furcata *L.* Common on trees, R. S.

Lunularia cruciata *L.* On garden paths, &c., near York, R. S.

Marchantia polymorpha *L.* Common in shady places, especially on burnt earth and charred wood, R. S.

Reboulia hemisphærica *Raddi.* Firby Wood, on stones, R. S.

Conocephalus (*Fegatella* Raddi) **conicus** *L.*
Near York, under bridges, at the mouth of wells, &c., R. S.

Sphærocarpus terrestris *L.* Beverley, in fallow fields, R. T.

Riccia natans *L.* Ditches and ponds near Beverley, R. T.

R. fluitans *L.* With the preceding, R. T. Howden, H. F. P.

R. glauca *L.* Riccall, H. F. P.

REPORT

OF THE

BOTANICAL SECTION: 1879.

By WILLIAM WEST, Bradford,

Secretary of the Section.

The Section has unfortunately to regret the loss of its best member during the year—in fact no other than our hardworking Secretary, Dr. Parsons, who has left Yorkshire; and it is hoped that the loss of such an active botanist as he undoubtedly was, will stimulate the other members of the Section to try to make up his loss by working more vigorously and striving to emulate his example. It is also hoped that his services to the Union will be recognised.*

The usual six meetings have been held at the following places during the year:—Ingleton, on April 14th; Harrogate, on May 10th; York, on June 2nd; Hebden Bridge, on July 19th; Doncaster, on August 4th; and Riccall, on September 4th.

INGLETON, MAY 14TH, 1879.

This was a highly successful meeting, especially with regard to cryptogamic plants, for the following reasons:—The district is a particularly rich one, being almost entirely of a mountainous character, and a small party had been searching the neighbourhood for a few days previous to the meeting. The ground explored on the day of the ramble was the ascent of Ingleborough from Ingleton and the district lying immediately about Ingleton,

* Since the above was written, Dr. Parsons' services have been recognised by his being chosen the first Honorary Life Member of the Union.

including Weathercote Cave. In addition to this, the small party above-mentioned had worked about the Moorcock Inn, near Hawes Junction, thence over Baugh Fell, down the Rawthey Valley to Sedbergh, then over the Howgill Fells, round Cautley Spout, and back again to Sedbergh, thence to Dent, through Deepdale and up the western slope of Whernside to the summit, the descent being made through Kingsdale to Ingleton. There were not a large number of flowering plants seen, for, in addition to the early time of the year being against the observance of a large number, the protracted winter had hardly yet left the district, all the hill-tops being more or less covered with ice and snow. Representatives of all the kinds of soils mentioned in the supplement to last year's report were met with in this ramble, and a large number of the plants enumerated as characteristic of these soils were seen. A larger number of cryptogams were noticed than phanerogams—an occurrence at our meetings without a precedent—only 121 of the latter class being seen, whereas 157 of the former were noticed. Among the rarer vascular plants seen were several which are found nowhere else in the West Riding, as *Alchemilla alpina* on the Howgill Fells, and *Saxifraga oppositifolia* on Ingleborough. Among the other rare plants observed were *Draba muralis*, *Alsine verna*, *Rubus Chamæmorus*, *Saxifraga aizoides*, *S. hypnoides*, *Taxus baccata* and *Sesleria cærulea*. Vascular cryptogams were plentiful, the rarer being *Hymenophyllum unilaterale*, *Cryptogramme crispa*, *Asplenium viride*, *Lycopodium clavatum*, *L. Selago*, *L. alpinum* and *Selaginella selaginoides*.

Mosses were gathered in great variety and luxuriance. *Orthotrichum diaphanum* occurred near Hawes Junction, Baugh Fell yielded *Andreæa falcata*, *Orthotrichum saxatile*, *Mnium stellare*, *Breutelia arcuata* and *Polytrichum strictum*, while the Rawthey Valley produced *Ulota intermedia*, *U. Bruchii* and *Fissidens bryoides;* but the richest gatherings were made on the curiously shaped Howgill Fells, where the Silurian formation was noticed to produce quite a change in the flora. *Andreæa petrophila*,

Rhabdoweissia fugax, *Dicranella squarrosa*, *Campylopus atrovirens*, *Seligeria recurvata*, *Grimmia Doniana*, *Zieria julacea*, 5 species of *Rhacomitrium*, *Amphoridium Mougeotii*, *Splachnum sphæricum*, *Diphyscium foliosum*, *Fissidens adiantoides*, *Hedwigia ciliata*, *Pterygophyllum lucens*, *Hypnum Cossoni*, *H. ochraceum*, *H. falcatum* and *H. brevirostre* were among the harvest of mosses here gathered. The Dent neighbourhood yielded *Seligeria pusilla*, *Barbula tortuosa*, *Orthotrichum Lyellii*, *Bartramia Œderi*, *Anomodon viticulosus* and *Neckera crispa*, all in fruit. The western slope of Whernside yielded *Andreæa rupestris*, the summit *Grimmia Donniana*, and the southern slope *Hypnum loreum*, all in fruit. On the way between Ingleton and the summit of Ingleborough were found *Eucladium verticillatum*, *Barbula tortuosa*, *Distichium capillaceum*, *Orthotrichum rivulare*, *Encalypta ciliata*, *Thuidium tamariscinum*, *Hylocomium triquetrum* and *H. loreum*, all in fruit, as well as *Pseudoleskea catenulata*, *Orthothecium intricatum* and *Barbula recurvifolia* Schpr., in their usual barren condition.

Hepaticæ were also plentiful, and included *Jungermannia Taylori*, which was abundant among the grit rocks near the summit of Whernside, *Anthelia julacea* on the Howgill Fells, *Madotheca lævigata* in Deepdale, *Reboulia hemisphærica*, *Radula complanata* and *Ptilidium ciliare* on Ingleborough, *Frullania dilatata* near Sedbergh, and *Metzgeria furcata*, which occurred in large patches on the slabs at Cautley Spout. Twenty-three species were noticed.

Lichens were plentiful, 53 species being collected. *Lecidea geographica* was seen in all its beauty on the Silurian slabs of the Howgill Fells, the pretty *Lecanora parella*, *Graphis scripta*, *Parmelia perlata*, *Usnea barbata*, *Evernia furfuracea* and others adorned the trunks of the trees, the brittle *Solorina saccata* was fairly plentiful on the soil in the crevices of the limestone rocks on both Ingleborough and Whernside, and the grit rocks near the summit of both these hills were decked with the pretty *Sphærophoron coralloides*. *Parmelia conspersa* occurred in fine

fruit near Dent, as well as enormous fruiting specimens of *Peltigera canina;* the summit of Baugh Fell yielded *Cetraria islandica*, lower down the same hill yielded *Squamaria saxicola*, *Lecidea decolorans* and *Umbilicaria proboscidea.*

Fungi were of course out of season and very few were noticed, *Polyporus versicolor*, *Agaricus velutipes*, *Hypoxylon fuscum*, *Cucurbitaria cupularis* and *Helotium æruginosum* being among those that were seen.

Algæ were rather neglected, *Chroölepus aureum*, *Oscillatoria rupestris*, *Cymbella ventricosa* and *Nostoc sphæricum* being the best that were seen.

Mr. Isaac Hindson of Kirby Lonsdale presented to the section a list of the rarer plants he had observed in the neighbourhood.*

HARROGATE, MAY 10TH, 1879.

The district explored at this ramble, besides the immediate neighbourhood of Harrogate, included the rocky district about Pateley Bridge, the Permian limestone of Knaresborough, Greenhow and Markington. The district investigated consisted chiefly of the coal measures and Permian strata. The vascular plants observed were 133, and among them were many uncommon plants, the more noteworthy being *Helleborus viridis*, *Stellaria nemorum*, *Alsine verna*, *Saxifraga hypnoides*, *Vaccinium Vitis-idæa*, *V. Oxycoccos* and *Hymenophyllum unilaterale.*

Ninety-one Mosses were obtained, including *Dicranum majus* (ft.), *Eucladium verticillatum* (ft.), *Barbula papillosa*, *Ulota intermedia* (ft.), *Webera carnea*, *Bryum pallens* (ft.), *Mnium serratum*, *M. stellare*, *Pterygophyllum lucens* (ft.), *Leskea polycarpa*, *Plagiothecium Borrerianum*, *Amblystegium irriguum*, *Hypnum stellatum* and *Hylocomium brevirostre.*

Thirteen species of Hepaticæ were found, including fruiting specimens of *Scapania undulata* and *Jungermannia albicans.*

Twenty-one species of Lichens were noticed, none being rare. *Parmelia physodes* was very abundant on old trees near

* Since the above was written, the death of Mr. Hindson—on the 22nd of July, 1880, at the age of 74—has been announced.

Knaresborough, and *Lecidea geographica* was noticed in a rather unusual habitat on gritstone at Markington.

Fungi were represented by *Agaricus umbelliferus*, *Uredo Potentillarum*, *Rhytisma acerinum* and *Stegia ilicis.*

Among the few Algæ collected was *Lemania fluviatilis.*

Many other things would no doubt have been seen at this ramble but for the very backward season.

YORK, FOR ASKHAM BOG, JUNE 2ND, 1879.

This meeting was characterised by all the workers investigating one place only, and consequently the number of species observed was hardly as great as if the wider area usually examined had been gone over. The greater part of Askham Bog consists of a swamp, for the most part covered with small trees; it occupies the surface of a peat bed, resting on a depression of clay. The number of vascular plants observed was 182, including many very local species, but had the season been more advanced the number observed would have been considerably larger. The rarest plant of the bog was *Carex paradoxa*, which occurred in great profusion ; and among other unusual plants were *Ranunculus Lingua*, *Stellaria glauca*, *Vicia lathyroides* (near Acomb), *Hottonia palustris*, *Hydrocharis morsus-ranæ*, *Serratula tinctoria*, *Utricularia neglecta*, *Cladium Mariscus*, *Carex stricta*, *C. riparia*, *C. Pseudo-cyperus*, *Nephrodium Thelypteris* and *Osmunda regalis.*

Forty-one species of mosses were observed, none of which were very rare. *Hypnum cordifolium* was extremely plentiful, also *Tetraphis pellucida* and *Amblystegium serpens* at the bases of the trunks of the trees, also *Amblystegium heterocladium*, new to Britain. *Aulacomnium androgynum* with pseudopodia was growing on a fallen trunk intermingled with *Ceratodon purpureus* in fruit, the striated capsules of the latter making the finder almost certain that he had got the extremely rare fruit of *Aulacomnium androgynum. Climacium dendroides* was also plentiful in the bog, along with fine fruiting *Hypnum cuspidatum.*

Several common lichens were noticed, and among the

Hepaticæ collected was *Riccia natans*, a plant not before noticed in the district.

A few Fungi were noticed, including the rare *Dædalea confragosa*, which was tolerably abundant on willows.

Algæ were plentiful in the ditches and ponds, among those collected being *Batrachospermum moniliforme*, *Chætophora elegans*, *Oscillatoria nigra*, *Colœochæte scutata*, *Pandorina morum*, *Volvox globator*, *Closterium moniliforme* and *Mougeotia genuflexa*.

HEBDEN BRIDGE, JULY 19TH, 1879.

The success of this meeting would no doubt have been far greater if the weather had been more favourable for exploration, for rain fell heavily at intervals and hindered the usual vigorous observations. Luddenden Dene, Midgley Moor, and the rich rocky woods about Hebden Bridge were the places investigated. 185 vascular plants were seen, the rarer of which were *Corydalis claviculata*, *Rubus suberectus*, *Crepis paludosa*, *Jasione montana*, *Vaccinium Oxycoccos*, *Scutellaria minor*, *Lathræa squamaria*, *Paris quadrifolia*, *Carex remota*, *Melica nutans*, *Polypodium Dryopteris*, *P. Phegopteris* and *Ophioglossum vulgatum*.

Forty-nine species of mosses were observed, including *Dicranella squarrosa*, *Dicranum fuscescens*, *D. majus*, *Bartramia pomiformis*, *Leptobryum pyriforme*, *Atrichum crispum*, *Fontinalis squamosa* and *Hyocomium flagellare*.

Some common Hepaticæ were noticed, such as *Jungermannia barbata* and *Calypogeia trichomanis*.

Twelve Lichens were noticed, among which were *Cetraria aculeata* and dwarfed forms of *Sphærophoron coralloides*.

A few Fungi were observed, including *Uredo potentillarum* and *Agaricus hypnorum*.

A few Algæ were collected, but they were only common species.

DONCASTER, AUGUST 4TH, 1879.

This was the most successful meeting ever held as regards vascular plants, 461 of which were observed. A wide tract of ground was investigated, several routes being taken by different

parties. The Permian limestone tract towards Conisborough yielded a characteristic set of plants, and sets quite as typical were obtained in the district occupied by the Bunter pebble beds, in the black boggy ground of the "Cars," and in the dykes draining the "Cars." Some of the rarer plants observed were *Thalictrum majus*, *Ranunculus circinatus*, *R. Lingua*, *Helleborus viridis*, *Nuphar luteum*, *Barbarea stricta*, *Stellaria glauca*, *Sagina ciliata*, *Hypericum montanum*, *Ulex nanus*, *Trifolium striatum*, *Potentilla argentea*, *Rubus Sprengelii*, *R. corylifolius*, *Myriophyllum verticillatum*, *Carduus pratensis*, *Filago apiculata*, *Pyrola minor*, *Hottonia palustris*, *Daphne Laureola*, *Typha angustifolia*, the four *Lemnæ*, *Stratiotes aloides*, *Cladium Mariscus*, *Scirpus fluitans*, *Carex Pseudo-cyperus* and *Apera Spica-venti*.

Twenty-one species of mosses were collected, including *Barbula Hornschuchiana* and *Pogonatum nanum*.

A few common Hepaticæ and Lichens were collected.

Among the fungi collected were *Melampsora populina*, *Tilletia caries*, *Uredo Circeæ*, and *Trichobasis suaveolens*.

Few Algæ were collected, though no doubt this is a district that would well repay working. *Fragilaria capucina* was very abundant.

SELBY AND RICCALL COMMON, SEPTEMBER 4TH, 1879.

This was a very successful ramble. The districts explored were a large, wet, sandy expanse of land called Riccall and Skipwith Commons, the neighbourhood of Kelfield, and the river bank from Selby to Turnhead. 313 vascular plants were noticed, the rarer of which were *Thalictrum flavum*, *Stellaria glauca*, *Radiola millegrana*, *Drosera intermedia*, *Hypericum dubium*, *H. elodes*, *Helosciadium repens* Koch, *Pimpinella magna*, *Arctium majus*, *Bidens cernua*, *Gentiana Pneumonanthe*, *Rhinanthus major*, *Mentha Pulegium*, *Salix ambigua*, *S. argentea*, *Utricularia vulgaris*, the four *Lemnæ*, *Allium Scorodoprasum* and *A. vineale* var. *bulbiferum*.

Fifty-four species of Mosses were observed, including *Sphagnum rigidum* var. *compactum*, *S. subsecundum*, *S. tenellum*, *Pottia minutula* and *Hypnum imponens*.

The few Hepaticæ collected included *Riccia glauca.*

A few of the commoner Lichens and Fungi were observed.

Among the Algæ collected were *Mougeotia genuflexa*, *Spirogyra nitida*, *Arthrodesmus convergens*, *Sphœrozosma vertebratum*, *Euastrum elegans*, and many other desmids and diatoms.

SUMMARY.

The tabular statement which follows will give an idea of the work done at the meetings, the cryptogamic portion still showing that our cryptogamic workers need recruits, especially in the investigation of Fungi, Lichens, and Algæ. It will also be noticed that the success of the rambles has been greater than in previous years, no fewer than 970 species of plants having been recorded at our meetings, and this success ought to encourage us to greater efforts in the coming year.

TABULAR SUMMARY.

The following table shows the number of plants recorded at the meetings in 1879.

Class.	Ingleton, April 14th.	Harrogate, May 10th.	York, June 2nd.	Hebden Bridge, July 19th.	Doncaster, Aug. 4th.	Selby, Sep. 4th.	Total Records.	Total Species Recorded.	Total British Species.
Flowering Plants ...	102	121	172	172	452	301	1320	590	1603 (about).
Vascular Acrogens with Characeæ	19	12	10	13	9	13	76	33	80 ,,
Mosses	157	91	41	49	21	54	413	189	572 ,,
Hepaticæ	23	13	3	6	5	4	54	30	140 ,,
Lichens	53	21	3	12	4	6	99	56	1140 ,,
Fungi	7	8	7	4	6	6	38	30	3000 ,,
Algæ	8	3	10	6	3	24	54	42	(?)
Total	369	269	246	262	500	408	2054	970	

THE RARER PLANTS OBSERVED AT THE MEETINGS.

Although there are no new county records of vascular plants at the 1879 meetings, a large number of uncommon plants have been observed, many of which are very rare. New localities have been discovered for many scarce plants. The following list will illustrate the above remarks :—

Ranunculus circinatus *Sibth.* Doncaster.
R. trichophyllus *Chaix.* Doncaster.
R. Lingua *L.* Conisborough.
Helleborus viridis *L.* Conisborough.
Fumaria pallidiflora *Jord.* Riccall.
F. pallidiflora var. **Boræi.** Cantley.
Barbarea stricta *Andrz.* Doncaster.
Draba muralis *L.* Near the Moorcock, Hawes Junction.
Viola lutea *Huds.* Pateley Bridge.
Drosera intermedia, *Hayne.* Riccall.
Polygala depressa *Wender.* Doncaster.
Stellaria nemorum *L.* Pateley Bridge.
S. glauca *With.* Doncaster and Riccall.
Alsine verna *Bartling.* Whernside, Ingleborough and Pateley.
Sagina apetala *L.* Doncaster.
Hypericum montanum *L.* Conisborough.
H. elodes *L.* Riccall.
Rhamnus catharticus *L.* York.
R. Frangula *L.* York.
Ulex nanus *Forster.* Doncaster.
Trifolium striatum *L.* Doncaster.
Vicia tetrasperma *Moench.* Doncaster.

Vicia lathyroides *L.* Acomb.

Geum intermedium *Ehrh.* Airton (*Andrews, Soppitt and West*).

Prunus Padus *L.* York, Hebden Bridge and Doncaster.

Alchemilla alpina *L.* Howgill Fells.

Potentilla argentea *L.* Cantley and Doncaster.

Rubus suberectus *Anders.* Hebden Bridge and Doncaster.

R. rhamnifolius *W. & N.* Doncaster and Riccall.

R. leucostachys *Sm.* Doncaster and Riccall.

R. macrophyllus *Weihe* var. umbrosus. Doncaster and Riccall.

R. Sprengelii *Weihe.* Doncaster.

R. Radula *Weihe.* Doncaster.

R. Koehleri *Weihe* var. pallidus. Doncaster and Riccall.

R. corylifolius *Sm.* var. sublustris. Doncaster and Riccall.

Epilobium obscurum *Schreb.* Hebden Bridge and Doncaster.

Myriophyllum verticillatum *L.* Doncaster.

M. spicatum *L.* Doncaster.

Callitriche stagnalis *Scop.* Doncaster and Riccall.

Bryonia dioica *L.* Doncaster.

Saxifraga oppositifolia *L.* Ingleborough.

Chrysosplenium alternifolium *L.* Sedbergh and Pateley.

Helosciadium nodiflorum *Koch.* var. repens. Skipwith.

Pimpinella magna *L.* Pateley and Riccall.

Œnanthe Phellandrium *Lam.* York, Doncaster, and Selby.

Silaus pratensis *Bess.* York.

Carduus pratensis *Huds.* York and Doncaster.

Arctium majus *Schkuhr.* Barlby.

Filago apiculata *G.E.Sm.* Cantley.

Bidens cernua *L.* Selby.

Inula Conyza *DC.* Askern.

Crepis paludosa *Moench.* Hebden Bridge.

Hieracium gothicum *Fries.* Hebden Bridge.

H. umbellatum *L.* Skipwith.

Campanula glomerata *L.* Riccall.

C. latifolia *L.* Doncaster and Riccall.

Vaccinium Oxycoccos *L.* Baugh Fell, Whernside, Hebden Bridge, and Pateley.

V. Vitis-idæa *L.* Ingleborough and Pateley.

Pyrola minor *L.* Seat Sandal.

Chlora perfoliata *L.* Conisborough.

Gentiana Pneumonanthe *L.* Riccall.

Rhinanthus Crista-galli *L.* var. **major.** Barlby.

Lathræa squamaria *L.* Hebden Bridge.

Verbena officinalis *L.* Conisborough.

Mentha pulegium *L.* Skipwith.

Scutellaria minor *L.* Hebden Bridge.

Galeopsis versicolor *Curt.* Doncaster.

Lamium Galeobdolon *Crantz.* Pateley.

Myosotis repens *Don.* Doncaster.

Hottonia palustris *L.* York and Doncaster.

Primula farinosa *L.* Ingleton.

Lysimachia Nummularia *L.* Pateley and Doncaster.

Rumex maritimus *L.* Kelfield.

R. Hydrolapathum *Huds.* York and Doncaster.

Daphne Laureola *L.* Edlington Wood.

Humulus Lupulus *L.* Barlby and Doncaster.

Ulmus suberosa *Ehrh.* York and Hebden Bridge.
Myrica Gale *L.* York.
Salix pentandra *L.* York and Riccall.
S. triandra *L.* Pateley and Selby.
S. purpurea *L.* Selby.
S. ambigua *Ehrh.* York and Riccall.
S. repens *L.* var. argentea. Riccall.
Pinus sylvestris *L.* Riccall.
Taxus baccata *L.* Ingleton.
Typha angustifolia *L.* Doncaster.
Sparganium minimum *Fries.* Doncaster.
Lemna gibba *L.* Doncaster and Kelfield.
L. polyrhiza *L.* Doncaster and Kelfield.
Sagittaria sagittifolia *L.* Doncaster.
Hydrocharis morsus-ranæ *L.* York and Doncaster.
Stratiotes aloides *L.* Doncaster.
Orchis pyramidalis *L.* Doncaster.
O. Morio *L.* York.
Convallaria majalis *L.* Hebden Bridge.
Allium Scorodoprasum *L.* Selby.
A. oleraceum *L.* Selby.
A. vineale *L.* var. bulbiferum. Selby.
Colchicum autumnale *L.* Selby.
Cladium Mariscus *Brown.* Askern and Askham.
Carex paradoxa *Willd.* Askham Bogs.
C. stricta *Good.* Askham.
C. Pseudo-cyperus *L.* Doncaster and Askham.
Sesleria cœrulea *Scop.* Ingleborough.
Apera Spica-venti *L.* Cantley.

Melica nutans *L.* Hebden Bridge.

Brachypodium pinnatum *Beauv.* Conisborough.

Hymenophyllum unilaterale *Willd.* Pateley & Howgill Fells.

Cryptogramme crispa *Brown.* Sedbergh.

Asplenium viride *Huds.* Baugh Fell, Ingleborough and Whernside.

Cystopteris fragilis *Bernh.* Ingleton.

Nephrodium spinulosum *Desv.* Doncaster.

Polypodium Phegopteris *L.* Pateley and Hebden Bridge.

P. Dryopteris *L.* Pateley and Hebden Bridge.

Osmunda regalis *L.* Askham Bogs.

Ophioglossum vulgatum *L.* Hebden Bridge.

Lycopodium alpinum *L.* Whernside, Ingleborough and Howgill Fells.

Selaginella selaginoides *Gray.* Howgill Fells & Whernside.

Chara syncarpa *Thuil.* York.

ALIENS.

Only commonly occurring plants of this description have been noticed.

MOSSES.

Mr. C. P. Hobkirk has just issued a supplement to his list of West Riding mosses published in 1873, which shows that we have some good workers among our bryologists. Some new county records have been collected at the meetings of the Union this year. The following list comprises the rarer mosses observed at the meetings. N. C. R. means new county record.

Sphagnum rigidum *Schpr.* var. **compactum.** Riccall.

S. subsecundum *Nees.* Riccall.

S. tenellum *Ehrh.* Riccall.

Andreæa petrophila *Ehrh.* Winder near Sedbergh.

Andreæa rupestris *L.* Whernside and Ingleborough.

A. falcata *Schpr.* Baugh Fell: the second Yorkshire locality.

Gymnostomum rupestre *Schwg.* Howgill Fells.

G. curvirostrum *Ehrh.* Howgill Fells.

Rhabdoweissia denticulata *Brid.* Howgill Fells.

Dichodontium pellucidum *L.* Baugh Fell.

Dicranella squarrosa *Schrad.* Howgill Fells.

Campylopus atrovirens *DeNot.* Howgill Fells.

Seligeria pusilla *Hedw.* Dent.

S. recurvata *Hedw.* Howgill Fells.

Pottia minutula *Schwg.* Selby.

Eucladium verticillatum *L.* Ingleton and Knaresborough.

Ditrichum flexicaule *Schwg.* Whernside and Ingleborough.

Barbula rigidula *Dicks.* Ingleborough.

B. spadicea *Mitt.* Ingleborough.

B. lævipila *Brid.* Dent and Knaresborough.

B. papillosa *Wils.* Knaresborough.

Distichium capillaceum *L.* Howgill Fells and Ingleborough.

Encalypta ciliata *Hedw.* Ingleborough.

Grimmia trichophylla *Grev.* Sedbergh.

G. Donniana *Sm.* Whernside.

Racomitrium heterostichum *Hedw.* Howgill Fells.

Ptychomitrium polyphyllum *Dicks.* Howgill Fells.

Amphoridium Mougeotii *B. & S.* Brant Fell.

Ulota intermedia *Schpr.* Rawthey Dale.

U. Bruchii *Hornsch.* Rawthey Dale.

Orthotrichum saxatile *Brid.* Baugh Fell.

O. diaphanum *Schrad.* Hawes Junction and Starbeck.

O. Lyellii *H. & T.* Dent.

Orthotrichum rivulare *Turn.* Ingleton.
Physcomitrium pyriforme *L.* Pateley.
Entosthodon Templetoni *L.* Howgill Fells. N. C. R.
Bartramia pomiformis *L.* Hebden Valley.
B. Œderi *Gunn.* Dent, Pateley, and Baugh Fell.
Breutelia arcuata *Dicks.* Baugh Fell and Whernside.
Leptobryum pyriforme *L.* Hebden Valley.
Webera elongata *Dicks.* Sedbergh to Dent.
W. albicans *Wahl.* Howgill Fells.
Zieria julacea *Schpr.* Howgill Fells.
Bryum pendulum *Hornsch.* Pateley.
B. pseudo-triquetrum *Hed.* Howgill Fells.
B. filiforme *Dicks.* Ingleborough.
Mnium serratum *Schrad.* Whernside and Baugh Fell.
M. stellare *Hed.* Baugh Fell.
Aulacomnium androgynum *L.* York.
Atrichum crispum *James.* Hebden Valley.
Pogonatum urnigerum *L.* Howgill Fells.
Polytrichum gracile *Menz.* Baugh Fell.
P. formosum *Hedw.* Whernside.
P. strictum *Banks.* Baugh Fell.
Diphyscium foliosum *L.* Brant Fell.
Fissidens adiantoides *Hedw.* Hawes Junction and Howgill Fells.
Fontinalis squamosa *L.* Hebden Valley.
Hedwigia ciliata *Dicks.* Howgill Fells.
Pterygophyllum lucens *Sm.* Howgill Fells.
Pseudo-leskea catenulata *Brid.* Ingleborough.
Isothecium myurum *Poll.* Howgill Fells and Pateley.

Brachythecium glareosum *B. & S.* Knaresborough and Doncaster.

B. plumosum *Swartz.* Baugh Fell.

Eurhynchium crassinervium *Tayl.* Whernside, York and Knaresborough.

E. Swartzii *Turn.* Howgill Fells and Pateley.

Hyocomium flagellare *Dicks.* Howgill Fells and Hebden Bridge.

Rhyncostegium murale *Hed.* Ingleton and Pateley.

Plagiothecium Borrerianum *Spruce.* Howgill Fells, Askham and Hebden Valley.

Amblystegium irriguum *Wils.* Pateley.

Hypnum exannulatum *Gümb.* Riccall.

H. Cossoni *Schpr.* Brant Fell. N. C. R.

H. falcatum *Brid.* Howgill Fells.

H. imponens *Hed.* Riccall Common.

H. palustre *L.* Hawes Junction.

H. ochraceum *Turn.* Brant Fell.

H. cordifolium *Hed.* York and Riccall.

H. scorpioides *L.* Howgill Fells and Riccall.

Hylocomium brevirostre *Ehrh.* Baugh Fell and Pateley.

H. loreum *L.* Whernside and Ingleton.

HEPATICÆ.

The following are the rarer ones found at our meetings:—

Jungermannia Taylori *Hook.* Whernside.

J. julacea *Light.* Howgill Fells.

Madotheca platyphylla *Dum.* Dent.

Frullania dilatata *Nees.* Sedbergh.

F. Tamarisci *Nees.* Ingleton.

Blyttia Lyellii *End.* Howgill Fells.

Reboulia hemisphærica *Raddi.* Ingleborough.

Fegatella conica *Corda.* Ingleton.

Riccia glauca *L.* Selby.

R. natans *L.* York.

LICHENS.

The following are among those collected at our rambles:—

Sphærophoron coralloides *Pers.* Ingleborough, Whernside and Baugh Fell.

Stereocaulon coralloides *Fr.* Ingleborough.

Cladonia furcata *Hoffm.* Ingleborough and Hawes Junction.

C. pyxidata *Fr.*

C. cornucopioides *Fr.* Ingleborough.

C. uncialis *Hoffm.* Baugh Fell and Ingleborough.

C. rangiferina *Hoffm.* Baugh Fell and Ingleborough.

Usnea barbata *Fr.* Moorcock, Hawes Junction.

Evernia prunastri *L.* Dent and Hawes Junction.

E. furfuracea *Mann.* Dent and Hawes Junction.

Ramalina farinacea *L.* Hawes Junction and Dent.

R. fraxinea *Fries.* Hawes Junction.

Cetraria islandica *L.* Baugh Fell.

C. aculeata *Fr.* Ingleborough, Whernside and Baugh Fell.

Peltigera horizontalis *L.* Thornton Force.

P. aphthosa *L.* Thornton Force.

Solorina saccata *L.* Kingsdale and Ingleborough.

Stictina fuliginosa *Dicks.* Thornton Force.

Parmelia caperata *L.* Ingleton.

P. olivacea *L.* Baugh Fell and Ingleborough.

P. physodes *L.* Ingleton and Hawes Junction.

Parmelia perlata *L.* Dent and Ingleton.

P. conspersa *Ehrh.* Hawes Junction and Dent.

P. omphalodes *L.* Whernside and Ingleborough.

Physcia pulverulenta *Schreb.* Ingleton.

P. obscura *Ehrh.* Dent.

P. stellaris *L.* Dent.

P. cæsia *Hoffm.* Dent.

Umbilicaria proboscidea *Ach.* Baugh Fell.

Pannaria nigra *Huds.* Dent.

Squamaria saxicola *Poll.* Hawes Junction.

Placodium murorum *Hoffm.* Baugh Fell.

P. candicans *Dicks.* Thornton Force.

Lecanora ventosa *L.* Howgill Fells.

L. aurantiaca *Lightf.* Ingleton.

L. atra *Huds.* Ingleton.

L. vitellina *Ach.* Ingleton.

L. subfusca *L.* Hawes Junction.

L. cinerea *L.* Ingleton.

L. parella *L.* Sedbergh.

L. badia *Ach.* Baugh Fell.

L. ferruginea *Huds.* Baugh Fell.

Pertusaria communis *DC.* Dent and Ingleton.

Lecidea decolorans *Flk.* Baugh Fell.

L. parasema *Ach.* Ingleton.

L. contigua *Fr.* Pateley and Hawes Junction.

L. contigua *Fr.* var. limitata. Baugh Fell.

L. canescens *Dicks.* Ingleton.

L. geographica *L.* Howgill Fells and Ingleborough.

Graphis scripta *Ach.* Rawthey Dale and Pateley.

Endocarpum miniatum *L.* Kingsdale.

E. fluviatile *DC.* Kingsdale.

FUNGI.

The following are some of the Fungi observed at our meetings :—

Agaricus hypnorum *Batsch.* Hebden Bridge.

A. umbelliferus *L.* Pateley.

A. velutipes *Curt.* Ingleton.

Polyporus versicolor *Fr.* Ingleton.

Lycogala epidendrum *Fr.* York.

Stereum hirsutum *Fr.* Pateley.

Cyathus vernicosus *DC.* Selby.

Tilletia caries *Tul.*

Melampsora populina *Lev.* Doncaster.

Uredo Circeæ *A. & S.* Seat Sandal.

U. potentillarum *DC.* Knaresborough and Hebden Valley.

Trichobasis suaveolens *Lev.* Doncaster.

Peziza aurantia *Fr.* Selby.

Helotium æruginosum *Fr.* Ingleton.

Stegia ilicis *Fr.* Knaresborough and Sedbergh.

Rhytisma acerinum *Fr.* Pateley.

Hypoxylon fuscum *Fr.* Sedbergh.

Cucurbitaria cupularis *Fr.* Sedbergh.

ALGÆ.

Among the Algæ collected at the meetings were:—

Lemania fluviatilis *Ag.* Harrogate.

Batrachospermum moniliforme *Roth.* York.

Chætophora tuberculosa *Hook.* York.

Coleochæte scutata *De Breb.* York.

Mougeotia genuflexa *Ag.* York and Riccall.
Spirogyra nitida *Dillw.* Riccall.
Chroolepus aureum *Ktz.* Baugh Fell.
Vaucheria cæspitosa *Ag.* Dent and Markington.
Oscillatoria rupestris *Ag.* Ingleton.
Sirosiphon compactus *Ktg.* Brant Fell.
Euastrum elegans *Breb.* Riccall.
E. oblongum *Ralfs.* Riccall and Markington.
Cosmarium margaritiferum *Turp.* Riccall.
C. pyramidatum *Breb.* Riccall.
Arthrodesmus convergens. Riccall.
Staurastrum gracile. Riccall.
S. furcigerum. Riccall.
Pleurotænium baculum *Breb.* Riccall.
Closterium acerosum *Schr.* Markington.
C. costatum *Cda.* Markington.
Sphærozosma vertebratum *Breb.* Riccall.
Raphidium polymorphum *Fres.* var. falcatum. Riccall and Markington.
Scenedesmus quadricauda *Breb.* Riccall.
Penium Brebissonii *Ralfs.* Riccall.
Fragilaria capucina *Desm.* York and Doncaster.
Cymbella ventricosa *Ag.* Ingleton.
Gomphonema acuminatum *Ehrh.* Ingleton.
Tabellaria flocculosa *Kg.* Riccall.
Gonium tranquillum *Ehrh.* Riccall.

RECORDS, OTHER THAN THOSE BELONGING TO THE MEETINGS, MOSTLY BY MEMBERS.

NEW COUNTY RECORDS.

Species.	*Locality & Observer.*	*Vice-County.*
Viola canina *Auct.*	... H. F. Parsons.	S.E.
Malva moschata *L.*... ...	... H. F. Parsons.	S.E.
Geranium columbinum *L.*...	... H. F. Parsons.	S.E.
Euonymus europæus *L.* ...	... H. F. Parsons.	S.E.
Rosa mollissima *Willd.* ...	... H. F. Parsons.	S.E.

(The localities have not been given for the above).

Taraxacum officinale *Wigg.*
var. erythrospermum ... Gordale. W. West. M.W.

Scutellaria minor *L.* Breighton Common. H. F. Parsons. S.E.

Bromus Benekenii (eu-asper). ...Rokeby.... A. Ley. N.W.

Festuca sylvatica *Vill.*
Rocks, High Force, Teesdale. A. Ley. N.W.

Chara flexilis *L.* ... Tong Park Mills. ... W. West. S.W.

Chara syncarpa *Thuil.*...Rawcliffe Common....W. West. S.W.

CASUALS.

The following have been noticed :—

Anemone apennina *L.*... Near Seamer. ... G. E. Massee. N.

Lepidium ruderale *L.* ... Carr Pit, Huddersfield. ..
T. H. Bartlam. S.W.

Potentilla norvegica *L.* Armley, Kirkstall. J. Abbott. M.W.

Xanthium spinosum *L.* ... Batley. ... P. F. Lee. S.W.

Rumex scutatus *L.* ... Malham. ... W. West, M.W.
Ribblehead, F. A. Lees. M.W.

Crocus speciosum —. ... Birkby and Huddersfield. ...
John Bartlam. S.W.

RARER PLANTS.

Thalictrum minus *L.* var. **montanum.**
Arncliffe. Crebbin and West.

Ranunculus Lenormandi *F. Schultz.* Wibsey. W. West.

Cardamine impatiens *L.* Ling Ghyll, Ribble Head.

Cochlearia officinalis *L.* var. **alpina.** Gordale. W. West.

Draba muralis *L.* Malham. Andrews, Soppitt and West.

Thlaspi alpestre *L.* var. **occitanum.** Malham. W. West.

Sagina apetala *L.* Gilstead. Lees and West.

Alsine verna *Bartling.* Malham. Crebbin and West.

Silene nutans *L.* Bramham. Crebbin and West.

Rubus saxatilis *L.* Gordale. Andrews, Soppitt and West.

Ribes alpinum *L.* Malham Moor. W. West. Litton. T. Rogers.

Galium sylvestre *Poll.* Malham (common on the limestone here, as in Derbyshire). Andrews, Soppitt & West.

Carduus heterophyllus *L.* Malham to Arncliffe. W. West.

Eupatorium cannabinum *L.*
Shipley Glen (quite rare about here). H. T. Soppitt.

Crepis paludosa *Moench.*
Shipley Glen. Andrews, Nuttall and West.

Polemonium cœruleum *L.* Malham & Gordale. W. West.

Primula vulgaris *Huds.* var. **caulescens.**
Bolton Woods. Crebbin and West.

Anagallis cærulea *Sm.* Bulmer. G. E. Massee.

Ulmus suberosa *Ehrh.* Eccleshill. W. Nuttall.

Salix phylicifolia *L.* Arncliffe. W. West.

Potamogeton rufescens *Schrad.* Bingley. Lees and West.

Orchis ustulata *L.* Collingham. Crebbin and West.

Gymnadenia albida *Rich.*
Malham Tarn. Andrews, Soppitt and West.

Ophrys muscifera *Huds.* Collingham. Crebbin and West.

Carex lævigata *Sm.* Malham. Andrews, Soppitt and West.

Psamma arenaria *R. & S.* Redcar. J. Abbott.

Melica nutans *L.* Boston Spa. Crebbin and West.

Elymus arenarius *L.* Redcar. J. Abbott.

Festuca sylvatica *Vill.* Ling Ghyll. F. A. Lees.

Poa Balfourii *Bab.* Ling Ghyll. F. A. Lees.

Aspidium Lonchitis *Sw.* Ribblehead. F. A. Lees.

Ophioglossum vulgatum *L.* Tong. J. Faull.

MOSSES.

Several hitherto unrecorded species have been added to the list for the county, and new localities for rarities have been found. The following lists of the less frequently occurring Mosses will give an idea of the work done in this order of plants. In the first list of additions to Mr. Hobkirk's 1873 list some of the mosses were collected before 1879, but none have been recorded in our Transactions. Most of them have been recorded in a paper by Mr. C. P. Hobkirk, F.L.S., in the Journal of Botany, none of them being contained in the last list of West Riding Mosses published by the same writer in 1873. Some of the new county records of mosses in Mr. Hobkirk's last list were published in these Transactions last year. They are omitted from the present list.

ADDITIONS TO MR. HOBKIRK'S 1873 LIST.

Andreæa falcata *Schpr.* Ingleborough, April, 1878. W. West.

A. crassinervia *Bruch.* Penyghent. J. Whitehead.
Hebden Bridge. G. E. Hunt.

Weissia crispula *Hed.* Harrogate. T. Hick.

Dicranum scoparium *L.* var. **paludosum.**
Whernside. Lees and West.

Campylopus alpinus *Schpr.*
Ingleborough, April, 1878. W. West.

C. paradoxus *Wils.* Rombalds Moor. J. S. Wesley.

Pottia intermedia *Turn.* Wetherby. J. S. Wesley.

Didymodon flexifolius var. **gemmescens** *Mitt.*
Ingleborough, M. & C.

Ditrichum flexicaule var. **densum.**
Malham Moor. C. P. Hobkirk and T. Rogers.
Gordale and Arncliffe. W. West.

Barbula Hornschuchiana *Schultz.*
Doncaster, September, 1878. W. West.

B. muralis *L.* var. **rupestris.** Whernside. Lees and West.

B. cylindrica *Tayl.* Harewood. F. Arnold Lees.

B. revoluta *Schm.* Todmorden. T. Stansfield.

Grimmia ovata *W. & M.* Slaidburn. F. A. Lees.

G. apocarpa *L.* var. **rivulare.** Strid and Arncliffe. W. West.

Racomitrium heterostichum *Hedw.* var. **alopecurum.**
Whernside. Lees and West.

Ulota intermedia *Schpr.* Bramham. J. S. Wesley.

Orthotrichum affine *Schrad.* Wetherby. J. S. Wesley.
Rawcliffe and Wrex. H. F. Parsons. Skipton. W. West.

Webera annotina *Hedw.* Wetherby. J. S. Wesley.
Baildon. W. West.

Bryum roseum *Schreb.* Ripon. Miss Morton.
Pennant Clough and Hebden Valley. T. Stansfield.
Gordale. W. West.

B. rufum *Ferg.* Litton. J. Whitehead. New to Science.

B. origanum *Bosw.* Lowton and Teesdale. J. S. Wesley.

Fissidens incurvus *Schev.* Wetherby. J. S. Wesley.
Todmorden. T. Stansfield.

F. pusillus *Wils.* Pontefract. Dr. Wood.

F. crassipes *Wils.* Arncliffe. W. West.

Scleropodium cæspitosum *Wils.* Tadcaster. R. Spruce.

Plagiothecium nitidulum *Wahl.*
Penyghent. Whitehead and Percival.

Hypnum vernicosum *Lind.* Slaithwaite. C. P. Hobkirk.

H. Sendtneri *Schpr.* Wetherby. J. S. Wesley.

H. falcatum *Brid.* var. **virescens.**
Malham, Arncliffe and Clapham. W. West.

H. cupressiforme *L.* var. **nigroviride.**
Huddersfield and Wetherby. C. P. Hobkirk.

Var. **filiforme.** Bolton Woods, Whernside, &c. W. West.

Var. **compressum.** Rombalds Moor. W. West.

H. arcuatum *Lind.* Hackfall, J. G. Baker. Wetherby, J. S. Wesley. Todmorden, J. Nowell.

H. molluscum *Hedw.* var. **condensatum.**
Hawksworth. W. West.

H. eugyrium *Schpr.* Cantley Spout. J. Nowell.

H. umbratum *Schreb.*
Dallen Ghyll, near Ripley. Wm. Brunton.

UNCOMMON MOSSES OBSERVED.

Sphagnum cuspidatum *Ehrh.* var. **plumosum.**
Baildon. W. West.

S. tenellum *Ehrh.* Seamer. G. E. Massee.

S. squarrosum *Pers.* Terrington Carr. G. E. Massee.

Phascum curvicollum *Hedw.* Scarborough. G. E. Massee.

Gymnostomum rupestre *Schw.* Gordale. W. West.

Dichodontium pellucidum *L.* Baildon. W. West.

Dicranella crispa *Hedw.* Scarborough. G. E. Massee.

D. cerviculata *Hed.* Baildon and Allerton. W. West.

Campylopus Shawii *Wils.* Seamer. G. E. Massee.

Campylopus flexuosus *Brid.*
Baildon, Shipley, Hawksworth, and Bingley. W. West.

C. fragilis *B. & S.* Adel and Baildon. W. West.

C. pyriformis *Brid.* Rombalds Moor. W. West.

Leucobryum glaucum *L.* In fruit. Seamer. G. E. Massee.

Seligeria pusilla *Hed.* Malham and Arncliffe. W. West.

Brachyodus trichodes *N. & H.*
Scarborough. G. E. Massee.

Pottia truncatula *L.* Scarborough. G. E. Massee.

Anacalypta Starkeana *N. & H.*
Scarborough. G. E. Massee.

Didymodon luridus *Hornsch.*
Ingleborough, April, 1878. W. West. Quite a black form.

D. flexifolius *Dicks.* Bingley and Saltaire. W. West.

Eucladium verticillatum *Brid.*
Crambe Beck, Castle Howard. G. E. Massee.

Ditrichum tortile *Schrad.*
Bulmer and Castle Howard. G. E. Massee.

D. mutabile *Bruch.* Arncliffe. W. West.
Mr. Boswell says this is an unusual form.

Barbula rigida *Schultz.* Scarborough. G. E. Massee.

B. ambigua *B. & S.* Scarborough. G. E. Massee.
Bolton Woods. W. West.

B. recurvifolia *Schpr.* Wetherby. J. S. Wesley.
Malham. W. West.

B. convoluta *Hedw.* Addingham. W. West.
Scarborough. G. E. Massee.

B. muralis *L.* var. rupestris. Scarborough. G. E. Massee.

B. marginata *B. & S.* Welburn. G. E. Massee.

B. Hornschuchiana *Brid.* Castle Howard. G. E. Massee.

B. papillosa *Wils.* Castle Howard. G. E. Massee.

Distichium capillaceum *L.* Bolton Woods. W. West.

Encalypta vulgaris *Hedw.* Castle Howard. G. E. Massee.

E. ciliata *Hedw.* Near Litton. Rogers and Whitehead.

Grimmia Doniana *Sm.* Scarborough. G. E. Massee.

Ptychomitrium polyphyllum *Dicks.* Scarborough. G. E. Massee. Burley. W. Nuttall.

Zygodon viridissimus *Dicks.* Gordale. W. West.

Z. Nowellii *Schp.* Litton. Whitehead and Rogers. Ingleborough, April, 1878. W. West.

Orthotrichum saxatile *Brid.* Scarborough. G. E. Massee.

O. rivulare *Turn.* Litton. Whitehead and Rogers.

Splachnum sphæricum *L. fils.* Rombalds Moor. W. West.

Entosthodon ericetorum *Bals.* Gearstones. F. A. Lees.

Physcomitrium pyriforme *L.* Scarborough. G. E. Massee. Bolton Woods. Crebbin and West.

Funaria calcarea *Wahl.* Malham Cove. W. West.

Bartramia ithyphylla *Brid.* Bolton Woods. W. West.

B. Œderi *Gunn.* Arncliffe. Crebbin and West.

Philonotis calcarea *B. & S.* Malham. W. West.

Leptobryum pyriforme *L.* Scarborough. G. E. Massee. Spofforth. F. A. Lees.

Webera carnea *L.* Scarborough. G. E. Massee.

W. albicans *Wahl.* Bingley. W. West.

Bryum pallens *Swartz.* Selby. W. N. Cheesman.

B. Funkii *Schwg.* Seamer. G. E. Massee.

B. roseum *Schreb.* Gordale. W. West.

Cinclidium stygium *Swartz.* Near Malham Tarn, sent (un-named as a rare moss) in fruit last August by Mr. Morrison's steward (an old station).

Mnium stellare *Hedw.* Bolton Woods. W. West.

Mnium serratum *Schrad.* Litton. Rogers and Whitehead. Arncliffe. W. West.

M. subglobosum *B. & S.* Malham Tarn Bog. A. Crebbin and W. West.

M. orthorhynchum *B. & S.* Litton. Rogers and Whitehead.

Pogonatum nanum *Brid.* Scarborough. G. E. Massee.

Antitrichia curtipendula *L.* Spofforth. F. A. Lees.

Pterygophyllum lucens *Sm.* Castle Howard. G. E. Massee. Bolton Woods. A. Crebbin.

Thuidium recognitum *Hedw.* Scarborough. G. E. Massee.

Cylindrothecium concinnum *De Not.* Gordale. W. West.

Pylaisia polyantha *Schreb.* Scarborough. G. E. Massee.

Orthothecium intricatum *Hartm.* Ingleborough. W. West.

Brachythecium rivulare *B. & S.* Bolton Woods. W. West.

B. plumosum *Swartz.* Baildon. W. West.

Eurhynchium Swartzii *Turn.* Cottingley. W. West.

E. myosuroides *L.* Scarborough. G. E. Massee.

E. piliferum *Schreb.* Gordale and Airton. W. West.

Hyocomium flagellare *Dicks.* Marsden. Cheesman & West.

Rhynchostegium depressum *Bruch.* Scarborough and Castle Howard. G. E. Massee.

R. murale *Hedw.* Skipton. W. West.

Plagiothecium pulchellum *Hedw.* Scarborough. G. E. Massee.

Amblystegium riparium *L.* Scarborough. G. E. Massee. Wetherby. J. S. Wesley. Meanwood. W. West.

Hypnum aduncum *Hedw.* Scarborough. G. E. Massee. Riccall. W. West.

H. exannulatum *Gümb.* Baildon. W. West.

H. uncinatum *Hedw.* Bingley. W. West.

Hypnum palustre *L.* Baildon. W. West.

H. ochraceum *Turn.* Marsden. Cheesman and West.

H. chrysophyllum *Brid.* Wetherby. Lees and West.

H. stellatum *Schreb.* Eldwick. W. West.

H. scorpioides *Dill.* Scarborough. G. E. Massee.

H. brevirostre *Ehrh.* Ribble-head. F. A. Lees.

HEPATICÆ.

The following are among those found this year :—

Alicularia scalaris *Corda.* Baildon. W. West.

Plagiochila asplenioides *N.* Bingley. W. West.

Scapania undulata *M. & N.*
Baildon and Bingley. W. West. Eccleshill. W. Nuttall.

S. nemorosa *Hook.* Arncliffe. W. West.

Jungermannia sphærocarpa *Hook.* Bingley. W. West.

J. inflata *Huds.* Rombalds and Greetland Moors. W. West.

J. ventricosa *Dicks.* Bingley and Baildon. W. West.

J. intermedia *Lindb.* Horsforth. J. R. Murdoch.

J. attenuata *Lindb.* Baildon and Rombalds Moor. W. West.

J. exsecta *Schm.* Baildon. W. West. (N.C.R.)

J. barbata *Schr.* Baildon. W. West.

J. tricophylla *L.* Marsden. Cheesman and West.

Chiloscyphus polyanthus *Ca.* Baildon. W. West.
Birstall. F. A. Lees.

Lophocolea heterophylla *N.*
Baildon and Bingley. W. West.

Calypogeia trichomanis *L.* Baildon. W. West.

Ptilidium ciliare *Nees.* Baildon. W. West.

Lejeunia calcarea *Lib.* Litton. J. Whitehead.

Radula complanata *Dum.* Bolton Woods. W. West.

Madotheca platyphylla *Dum.* Bolton Woods. W. West.

Pellia calycina *Tayl.* Baildon & Rombalds Moor. W. West.

Aneura multifida *Dum.* Baildon. W. West.

Lunularia vulgaris *Mich.* Gordale. W. West.

Riccia glauca *L.* Bulmer. G. E. Massee.

LICHENS.

Very few have been noticed; the following are amongst those that have been collected :—

Cladonia uncialis *Hffm.* Baildon. W. West.

C. cornucopioides *Fr.* Baildon. W. West.

C. pyxidata *Fr.* Baildon. W. West.

Evernia prunastri *L.* Malham. W. West.

Platysma glaucum *L.*
Rombalds Moor and Hawksworth. W. West.

Peltigera polydactyla *Hffm.* Bingley. W. West.

Solorina saccata *L.* Gordale. W. West.

Physcia leucomela *L.* Ling Ghyll. F. A. Lees.

Parmelia olivacea *L.* Rombalds Moor. W. West.

Graphis scripta *Ach.* Bolton Woods and Gordale. W. West.

Endocarpum miniatum *L.*
Ribble-head. F. A. Lees. Gordale. W. West.

FUNGI.

We are greatly indebted to Mr. G. E. Massee of Scarborough for lists of plants, especially of Fungi, as will be seen by the following one, where the initials G. E. M. stand for his name. The following are among those that have been seen :—

Agaricus (Amanita) vaginatus *Bull.* Scarborough. G. E. M.

A. (A.) muscarius *L.*
Scarborough and Castle Howard. G. E. M.

Agaricus (A.) pantherinus *DC.* Scarborough. G. E. M.

A. (Lepiota) procerus *Scop.* Scarborough. G. E. M.

A. (L.) cristatus *Fries.* Scarborough. G. E. M.

A. (Armillaria) melleus *Vahl.* Scarborough. G. E. M.
Saltaire and Bingley. Soppitt and West.

A. (Tricholoma) luridus *Schæff.* Scarborough. G. E. M.

A. (T.) gambosus *Fries.* Scarborough. G. E. M.

A. (T.) tigrinus *Fr.* Scarborough. G. E. M.

A. (Clitocybe) nebularis *Batsch.* Scarborough. G. E. M.

A. (C.) dealbatus *P.* Scarborough. G. E. M.

A. (C.) laccatus *Scop.* Scarborough. G. E. M.

A. (Pleurotus) septicus *Fries.* Scarborough. G. E. M.

A. (P.) applicatus *Batsch.* Scarborough. G. E. M.

A. (Collybia) butyraceus *Bull.*
Scarborough and Castle Howard. G. E. M.

A. (C.) velutipes *Curt.*
Scarborough and Castle Howard. G. E. M.

A. (Mycena) capillaris *Schum.* Castle Howard. G. E. M.

A. (Omphalia) sphagnicola *Berk.*
Terrington Carr. G. E. M.

A. (Nolanea) pascuus *P.* Terrington Carr. G. E. M.

A. (Stropharia) æruginosus *Curt.* Scarborough. G. E. M.

A. (Hypholoma) fascicularis *Huds.*
Castle Howard and Scarborough. G. E. M.

A. (Psathyra) corrugis *P.* Terrington Carr. G. E. M.

A. (Panæolus) papilionaceus *Bull.* Bulmer. G. E. M.

Coprinus comatus *Fr.*
Bulmer. G. E. M. Bradford. W. West

C. atramentarius *Fr.* Scarborough. G. E. M.

C. niveus *Fr.* Scarborough. G. E. M.

Coprinus micaceus *Fr.* Bulmer and Scarborough. G. E. M.

Cortinarius (Dermocybe) caninus *Fr.*
Scarborough. G. E. M.

Lepista personata *Fr.* Bulmer. G. E. M.

Hygrophorus virgineus *Fr.* Scarborough. G. E. M.

H. niveus *Fr.* Scarborough. G. E. M.

H. coccineus *Fr.* Scarborough. G. E. M.

H. miniatus *Fr.* Scarborough. G. E. M.

H. puniceus *Fr.* Scarborough. G. E. M.

H. psittacinus *Fr.* Scarborough. G. E. M.

Lactarius torminosus *Fr.* Scarborough. G. E. M.

L. blennius *Fr.* Scarborough. G. E. M.

L. piperatus *Fr.* Castle Howard. G. E. M.

L. cilicioides *Fr.* Scarborough. G. E. M.

L. quietus *Fr.* Brandrith and Castle Howard. G. E. M.

L. rufus *Fr.* Scarborough. G. E. M.

L. hysginus *Fr.* Bingley. Soppitt and West.

Russula heterophylla *Fr.* Castle Howard. G. E. M.

R. emetica *Fr.* Castle Howard and Scarborough. G. E. M.

Cantharellus cibarius *Fr.*
Brandrith and Castle Howard. G. E. M.

Marasmius oreades *Fr.* Bulmer. G. E. M.

Boletus flavus *Fr.* Fir wood, Scarborough. G. E. M.

B. badius *Fr.* Fir wood, Seamer. G. E. M.

B. edulis *Bull.* Seamer Moor. G. E. M.

B. scaber *Fr.* Scarborough. G. E. M.

B. chrysenteron *Fr.* Saltaire. Soppitt and West.

Polyporus igniarius *Fr.* Bulmer. G. E. M.

P. conchatus *Fr.* Bulmer. G. E. M.

Polyporus versicolor *Fr.*
Castle Howard and Scarborough. G. E. M.

P. vulgaris *Fr.* Scarborough. G. E. M.

P. viridans *Berk.* Scarborough. G. E. M.

P. vaporarius *Fr.* Scarborough.

Dædalia quercina *P.* Castle Howard. G. E. M.

Hydnum niveum *P.* Scarborough. G. E. M.

H. farinaceum *P.* Scarborough. G. E. M.

Thelephora terrestris *Fr.* Castle Howard. G. E. M.

Stereum purpureum *Fr.* Castle Howard. G. E. M.

S. hirsutum *Fr.* Scarborough and Castle Howard. G. E. M.
Baildon. Soppitt and West.

S. rugosum *Fr.* Castle Howard. G. E. M.

Hymenochæte rubiginosa *Lev.* Castle Howard. G. E. M.

Auricularia mesenterica *Bull.* Scarborough. G. E. M.

Corticium cœruleum *Fr.* Castle Howard. G. E. M.

C. comedens *Fr.* Scarborough. G. E. M.

C. Sambuci *P.* Scarborough. G. E. M.

Clavaria fastigiata *DC.* Castle Howard. G. E. M.

C. coralloides *L.* Scarborough. G. E. M.

C. fusiformis *Sow.* Castle Howard. G. E. M.
Shipley and Bingley. Soppitt and West.

C. cinerea *Bull.* Saltaire. Soppitt and West.

C. rugosa *Bull.* Saltaire. Soppitt and West.

Calocera cornea *Fr.* Manningham. H. Andrews.

C. viscosa *Fr.* Castle Howard. G. E. M.

Typhula filiformis *Fr.* Scarborough. G. E. M.

Pistillaria quisquilaris *Fr.* Scarborough. G. E. M.

Tremella mesenterica *Retz.*
Bulmer and Scarborough. G. E. M.

Tremella albida *Huds.* Scarborough. G. E. M.

Exidia glandulosa *Fr.* Castle Howard. G. E. M.

Phallus impudicus *L.*
Castle Howard and Scarborough. G. E. M.
Bingley and Baildon. Soppitt and West.

Cynophallus caninus *Fr.* Bulmer and Scarborough. G. E. M.

Bovista nigrescens *P.* Castle Howard. G. E. M.

B. plumbea *P.* Castle Howard. G. E. M.

Lycoperdon giganteum *Batsch.*
Bulmer. G. E. M. Kildwick. W. West.

L. cælatum *Fr.* Bulmer. G. E. M.

L. saccatum *Vahl.* Bulmer. G. E. M.

L. gemmatum *Fr.* Bulmer. G. E. M.
Saltaire and Bingley. Soppitt and West.

L. pyriforme *Schœff.* Bulmer. G. E. M.

Scleroderma vulgare *Fr.* Bulmer. G. E. M.

Cenococcum geophilum *Fr.*
Terrington Peat Carr. G. E. M.

Lycogala epidendrum *Fr.* Bulmer. G. E. M.

Reticularia umbrina *Fr.*
Brandrith and Castle Howard. G. E. M.

Æthalium septicum *Fr.* Raincliffe, Scarborough. G. E. M.

Didymium nigripes *Fr.* Scarborough. G. E. M.

D. congestum *B. & Br.* Scarborough. G. E. M.

Tilmadoche nutans *P.* Scarborough. G. E. M.

T. mutabilis *Rffki.* var. lutea *Bull.* Scarborough. G. E. M.

T. atrum *Fr.* Scarborough. G. E. M.

Stemonitis fusca *Roth.* Scarborough. G. E. M.

Cribraria argillacea *Pers.* Scarborough. G. E. M.

Trichia clavata *P.* Scarborough. G. E. M.

Trichia turbinata *With.* Scarborough. G. E. M.

T. chrysosperma *DC.*
Scarborough and Castle Howard. G. E. M.

Phelonitis strobilina *Fr.* Castle Howard. G. E. M.

Cyathus vernicosus *DC.* Bulmer. G. E. M.

Crucibulum vulgare *Tul.* Bulmer. G. E. M.

Phoma asteriscus *Berk.* Scarborough. G. E. M.

P. nebulosum *Berk.* Scarborough. G. E. M.

Diplodia herbarum *Lev.* Scarborough. G. E. M.

Vermicularia trichella *Grev.* Bulmer. G. E. M.

Torula herbarum *Link.*
Scarborough. G. E. M. Baildon. W. West.

Phragmidium mucronatum *Lk.* Scarborough. G. E. M.

P. bulbosum *Schl.* Bulmer and Scarborough. G. E. M.

P. gracile *Grev.* Scarborough. G. E. M.

P. obtusatum *Link.* Shipley. Soppitt and West.

Puccinia graminis *Pers.* Scarborough. G. E. M.

P. striola *Link.* Scarborough. G. E. M.

P. menthæ *Pers.* Scarborough. G. E. M.

P. betonicæ *DC.* Bulmer and Scarborough. G. E. M.
Hawksworth. J. W. Carter.

P. compositarum *Sch.*
Saltaire. H. T. Soppitt. Scarborough. G. E. M.

P. variabilis *Grev.* Bulmer and Scarborough. G. E. M.

P. galiorum *Lk.* Baildon. Soppitt and West.
Bulmer and Scarborough. G. E. M.

P. umbelliferarum *DC.*
Bingley. H. T. Soppitt. Scarborough. G. E. M.

P. anemones *Pers.*
Bingley. H. T. Soppitt. Castle Howard. G. E. M.

Puccinia violarum *Lk.* Bingley. H. T. Soppitt. Scarborough. G. E. M.

P. lychnidearum *Lk.* Scarborough. G. E. M.

P. pulverulenta *Grev.* Scarborough. G. E. M.

P. fabæ *Lk.* Scarborough. G. E. M.

P. veronicarum *DC.* Saltaire. H. T. Soppitt.

P. syngenesiarum *Lk.* Saltaire. H. T. Soppitt.

P. hieracii *Mart.* Saltaire. H. T. Soppitt.

Ustilago antherarum *Fr.* Scarborough. G. E. M.

Tuburcinia scabies *B.* Bulmer. G. E. M.

Urocystis pompolygodes *Sch.* Bulmer. G. E. M. Saltaire. Soppitt and West.

Uromyces apiculata *Lev.* Scarborough. G. E. M.

U. ulmariæ *Lev.* Malham. W. West.

Coleosporium tussilaginis *Lev.* Scarborough. G. E. M.

C. campanulæ *Lev.* Scarborough. G. E. M.

C. sonchi-arvensis *Lev.* Scarborough. G. E. M.

Melampsora salicina *Lev.* Scarborough. G. E. M.

M. betulina *Desm.* Saltaire. Soppitt and West. Bulmer. G. E. M.

M. populina *Lev.* Bulmer. G. E. M.

Cystopus candidus *Lev.* Esholt. Soppitt and West. Bulmer. G. E. M.

Uredo caryophyllacearum *Johnst.* Scarborough. G. E. M.

U. vacciniorum *P.* Baildon. Soppitt and West.

Trichobasis suaveolens *Lev.* Bulmer and Scarborough. G. E. M.

T. umbellatarum *Lev.* Gilstead. W. West.

T. cichoracearum *Lev.* Eldwick. Soppitt and West.

Rœstelia lacerata *Tul.* Ribblehead. A. Crebbin.

Æcidium epilobii *DC.* Scarborough. G. E. M.

Æ. berberidis *Pers.* Scarborough. G. E. M.

Æ. leucospermum *DC.* Castle Howard. G. E. M.

Æ. ranunculacearum *DC.* Castle Howard. G. E. M.

Æ. albescens *Grev.* Scarborough. G. E. M.

Æ. bunii *DC.* Castle Howard. G. E. M.

Æ. valerianacearum *Dub.* Castle Howard. G. E. M.

Æ. grossulariæ *DC.* Bulmer. G. E. M.

Æ. urticæ *DC.* Bulmer. G. E. M.

Æ. compositarum *Mart.* var. tussilaginis.
Eldwick and Bingley. Soppitt and West.

Æ. violæ *Schum.* Bulmer. G. E. M.

Æ. allii *Berk.* The Dale, Castle Howard. G. E. M.

Isaria brachiata *Schum.* Castle Howard. G. E. M.

Anthina flammea *Fr.* Castle Howard. G. E. M.

Ceratium proboscidioides (n. sp. ined.)
On rotten wood, Bulmer. G. E. M.

Stilbum tomentosum *Schrad.* Scarborough. G. E. M.

Tubercularia granulata *P.* Bulmer. G. E. M.

Ægerita candida *P.* Bulmer. G. E. M.

Helminthosporium folliculatum *Corda.*
Scarborough. G. E. M.

H. macrocarpum *Grev.* Scarborough. G. E. M.

Botrytis terrestris *P.* Bulmer. G. E. M.

Peronospora infestans *Mont.*
Scarborough and Bulmer. G. E. M.

P. viciæ *B.* Bulmer. G. E. M.

P. sparsa *B.* Bulmer. G. E. M.

Penicillium crustaceum *Fr.*
Scarborough and Bulmer. G. E. M.

Oidium aureum *Lk.* Bulmer. G. E. M.

Sepedonium chrysospermum *Lk.* Scarborough. G. E. M.

Mucor phycomyces *B.* Scarborough. G. E. M.

M. caninus *P.* Scarborough. G. E. M.

M. fusiger *Lk.* Scarborough. G. E. M.

(Saprolegnia ferax *Ktz.* Bulmer. G. E. M.)

S hærotheca pannosa *Lev.*
Bulmer. G. E. M. Saltaire. Soppitt and West.

Peziza tuberosa *Bull.* Scarborough and Bulmer. G. E. M.

P. aurantia *Fr.* Scarborough. G. E. M.
Saltaire. H. T. Soppitt.

P. saniosa *Schrad.* Scarborough. G. E. M.

P. coccinea *Jacq.* Castle Howard and Scarborough. G. E. M.

P. scutellata *L.* Shipley Glen. Soppitt and West.
Scarborough. G. E. M.

P. stercorea *Pers.* Arncliffe and Roundhay. W. West.
Scarborough. G. E. M.

P. vesiculosa *Bull.* Bradford. W. West.

P. domestica *Sow.* Saltaire. H. T. Soppitt.

P. virginea *Batsch.* Bulmer and Scarborough. G. E. M.

P. nivea *Fr.* Bulmer and Scarborough. G. E. M.

P. bicolor *Bull.* Bulmer and Scarborough. G. E. M.

P. hyalina *Pers.* Scarborough. G. E. M.

P. sulphurea *Pers.* Bulmer and Scarborough. G. E. M.

P. firma *Pers.* Scarborough. G. E. M.

P. striata *Fr.* Scarborough. G. E. M.

P. atrovirens *Pers.* Castle Howard. G. E. M.

P. cinerea *Batsch.* Bulmer and Scarborough. G. E. M.

P. fusarioides *Berk.* Bulmer and Scarborough. G. E. M.

Helotium lutescens *Fr.* Scarborough. G. E. M.

H. aciculare *Fr.* Scarborough. G. E. M.

H. herbarum *Fr.* Scarborough. G. E. M.

Cenangium cerasi *Fr.* Castle Howard. G. E. M.

C. aucupariæ *Fr.* Scarborough. G. E. M.

Ascobolus furfuraceus *Pers.* Bulmer. G. E. M.

A. ærugineus *Fr.* Bulmer. G. E. M.

A. carneus *Pers.* Bulmer. G. E. M.

Bulgaria inquinans *Fr.* Bulmer. G. E. M.

B. sarcoides *Fr.* Bulmer. G. E. M.

Heterosphæria patella *Grev.* Scarborough. G. E. M.

Hysterium fraxini *Pers.* Castle Howard. G. E. M.

H. arundinaceum *Schrad.* Scarborough. G. E. M.

H. conigerum *Fr.* Castle Howard. G. E. M.

Stegia ilicis *Fr.* Bolton Woods. W. West.
Scarborough. G. E. M.

Torrubia militaris *Fr.* Castle Howard. G. E. M.

Epichloe typhina *Berk.* Bulmer. G. E. M.

Nectria curcurbitula *Fr.* Bulmer. G. E. M.

Xylaria polymorpha *Grev.* Scarborough. G. E. M.

X. digitata *Grev.* Bulmer. G. E. M.

X. corniformis *Mont.* Bulmer. G. E. M.

X. hypoxylon *Grev.* Bulmer. G. E. M.

X. carpophila *Fr.* Bulmer. G. E. M.

Ustulina vulgaris *Tul.* Castle Howard. G. E. M.

Dothidea trifolii *Fr.* Bulmer. G. E. M.
Bingley. Soppitt and West.

Diatrype quercina *Fr.* Castle Howard. G. E. M.

Sphæria aquila *Fr.* Castle Howard. G. E. M.

Sphæria mammæformis *Pers.* Scarborough. G. E. M.

S. herbarum *Pers.* leguminum. Bulmer. G. E. M.

S. rubella *Pers.* Scarborough and Bulmer. G. E. M.

S. acuta *Moug.* Scarborough. G. E. M.

S. rostellata *Fr.* Scarborough. G. E. M.

Stigmatea robertiani *Fr.* Scarborough. G. E. M.
Saltaire. H. T. Soppitt. Gordale. W. West.

Dichæna strobilina *Fr.* Castle Howard. G. E. M.

It is due to Mr. Massee to say that some of the commoner species contained in his lists have been purposely omitted.

ALGÆ.

None of the following species have been recorded before in our Transactions :—

Batrachospermum vagum *Roth.*
Kirkstall. Abbott, Emsley and Turner.

Draparnaldia glomerata *Vauch.* Roundhay.

Conferva floccosa *Ag.* Baildon. W. West.
Chapel Allerton. Abbott, Emsley and Turner.

Chantransia Hermanni *Roth.* Baildon. W. West.

Ulothrix mucosa *Thur.* Bramhope, Roundhay, & Adel Bog.
Abbott, Emsley and Turner.

Cladophora crispata *Roth.*
Common. Abbott, Emsley and Turner.

Stigeoclonium protensum *Dillw.* Wibsey. W. West.
Burley. W. Nuttall. Farnley. Abbott, Emsley & Turner.

Zygnema cruciata *Ag.*
Bramhope. Abbott, Emsley and Turner.

Z. Ralfsii—? Bramhope. Abbott, Emsley and Turner.

Spirogyra communis *Hass.* Adel. A., E., & Turner.

S. pellucida *K.* Hunslet. Abbott, Emsley and Turner.

THE

TRANSACTIONS

OF THE

YORKSHIRE NATURALISTS' UNION.

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PART 5.

Issued to the Subscribers for the year 1880.

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William Nelson and John W. Taylor.

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S. D. Bairstow, F.L.S., W. Denison Roebuck, and Thomas Wilson.

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Report on Yorkshire Botany for 1880 (commencement), with Plate of *Carex saxumbra*.

F. Arnold Lees, F.L.S.

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Family DREISSENIDÆ.

Genus DREISSENA Van Beneden.

Mytilomia, Cantr.
Cælogonia, Bronn.
Dithalmia, Say.
Myoconcha, D'Orb.
Congeria, Partsch.
Enocephalus, Munst.

The species of this genus are widely distributed, being found in Europe, Asia, Africa, North and Central America, and West Indies, and Mr. Garrett has recently discovered a species in Viti, not distinguishable from *D. Africanæ.*

The genus is subdivided by H. and A. Adams into *Dreissena* (sensu stricto), of which *D. polymorpha* is the type, and *Praxis* Adams, a group characterized by a small lamina affixed to the septum.

At the time of publication of Adams' "Genera of Recent Mollusca" fifteen species of recent, and about fourteen fossil forms were known. Several species of *Dreissena* inhabited the fresh waters of the Isle of Wight during the Upper Eocene epoch.

Dreissena polymorpha (Pallas).

Locally abundant.

In Yorkshire this shell is found exclusively in or near the canals or navigable rivers which intersect the manufacturing districts of the West Riding.

We have various records of unsuccessful attempts to introduce it into new localities. Mr. R. J. Bell stated in 1843 that Mr. Bean introduced it at Scarborough a few years before that date, but was of opinion that they all subsequently perished. Mr. G. F. Linney says "it was introduced into the Ackworth School Canal but did not flourish."

Mr. H. J. Bellars confirms the supposition of Dr. Jeffreys that this species may have existed in other parts of England prior to its discovery in the Commercial Docks in 1824, stating that it "had been observed many years previously in great profusion in Whittlesea Mere." Mr. R. J. Bell (Zool., 1843, p. 283) records the great abundance of this species in the docks at Goole, three or four years after their opening in 1838; and judged from the numbers of dead ones around that it was evident many generations had passed away. Mr. Bell also remarks that as far as the influence of the salt water extends into the dock not one solitary individual can be found, the line of demarcation being as perfect as the joint between one stone and another in a wall.

Mr. R. Tate says that it has a predilection for shady places, abounding beneath the shade of bridges, and in docks attaching itself to the under surfaces of floating timber. In its young state it frequently attaches itself to the vegetation just beneath the surface. It forms a frequent food of the water-rats, who leave the empty shells in heaps on the banks.

D. polymorpha is absent from the newer tertiaries of this country, but is found in those of Transylvania and Moravia, and near Vienna.

Mr. Bellars, of Chester, has noticed and described three varieties, and continental conchologists distinguish several more. A very curious malformation has been found at Nostel by Mr. Conacher and others, in which the periodic growths have a very distinct step-like appearance. Pearly concretions are not unfrequently found in this species.

3. ***Vale of York***—Formerly found in the artificial pond in the York Museum Gardens, where it had doubtless been introduced, R. B. Cook.
4. ***Humber***—Profusely abundant in the Docks at Goole, R. J. Bell, 1843.
6. ***Trent***—River Don, at Conisbro', in 1836, where it had evidently existed for some time, R. J. Bell (Zool., 1843).

7. ***Went Vale***—River Don, at Doncaster, R.D.M. ; abundant and fine in Nostel Lakes, one obtained by Mr. H. Richardson being 44 × 27 × 20 mill.
8. ***Dearne***—Wakefield and Barnsley Canal at Royston ! and below Barugh Locks, Barnsley, A.P.T. !
9. ***Don***—There are specimens in the Museum at Sheffield from the canal near that town, W.D.R. !
12. ***Lower Calder***—Very common in canal at Wintersett, but not large ; the largest specimens were under one inch in length, scarcely eroded, thin, and beautifully marked, W. E. Brown. It is worthy of remark that Mr. Ashford, writing in 1854, of specimens from the same locality, says, 'attached in masses to stone as usual, but almost every specimen corroded by the water.' Common in Cold Hiendley Reservoir ! New Miller Dam ! Wakefield and Barnsley Canal at Agbrigg !
13. ***Airedale***—Leeds and Liverpool Canal at Armley ! Kirkstall ! Newlay ! Rodley ! Calverley ! Apperley ! Bingley ! and Keighley !

——:o:——

Class GASTROPODA.

Order PECTINIBRANCHIATA.

Family NERITIDÆ.

Genus NERITINA Lamarck.

Unlike other of our genera, *Neritina* is hardly found in North America, but has its head-quarters in the islands of the Pacific Ocean, where numerous species are found.

We have but one species in England, which is also diffused throughout Europe and the adjacent portions of Africa and Asia. Our species is not a typical *Neritina*, but belongs to the subgenus *Vitta* of Klein, according to Adams, Chenu, and other systematists.

——:o:——

Neritina fluviatilis (L.).

Locally abundant.

This species is variable both in form and ornamentation, ranging in coloration from an uniform yellow (var. *cerina* Col-

beau) to uniformly black (var. *nigrescens* Colb.). The more striking intermediate forms between these two extremes have also been differentiated and described.

The species has been found living in company with marine shells in Loch Stennis (Orkney), the Baltic, and other places.

Mr. J. MacGillivray (Zool., 1852, p. 3430) records that some large water-pipes which had recently been taken up in the City Road, London, to be replaced by others, were inhabited by great numbers of *Neritina fluviatilis*, a *Limnæa*, &c. From the state of the interior of the pipes they had evidently been under ground for some years. The shells were in good condition and coloured as usual.

Mr. Warington states that he has noticed this species to have the power of spinning a web or thread. Mr. G. S. Tye says " its structure renders it impossible for it to spin an upward thread, and the nature of its habitat alike precludes it, and as it could not float in running water it could not therefore spin a downward thread. The act of floating is not a normal one with the creature, though it might perform it as mollusca sometimes do when placed under circumstances which allow of it, and if it floated there is no reason why it should not spin a downward thread."

Its distribution in Yorkshire—as shewn by the records—extends along a broad tract of somewhat level country from the south-east to the north-west, being found in nine out of the twenty-four districts into which we have divided the county.

As yet three varieties only have been found in the county, but doubtless others will reward the assiduous conchologist.

It would be interesting to verify the following observations on development, given by Mr. R. Tate, on the authority of Claparéde :—

Each female deposits her egg-capsules in clusters of fifty or sixty on the surface of the shell of her neighbour, and

not on her own; sometimes, but rarely, to stones, or to the shells of other mollusks. Each capsule contains from forty to sixty eggs, but only one embryo is developed, for the other eggs constitute the food of the young *Neritina* till it quits the capsule."

3. ***Vale of York***—Common in the Foss, R.M.C.; Tadcaster, H.C.! in the Wharfe at Boston Spa, W. C. Hey; in the Derwent near Kirkham Abbey, W. C. Hey.
4. ***Humber***—Goole, R.D.M.
12. ***Lower Calder***—Abundant in the Wakefield and Barnsley Canal at Heath!
13. ***Airedale***—Leeds and Liverpool Canal at Saltaire! and Bingley!
15. ***Wharfedale***—River Wharfe at Burley, H.S.! and Otley, H.S.!
17. ***Wensleydale***—Abundant under stones, frequently in the most rapid part of the River Ure at Hackfall, J. D.!
18. ***Swaledale***—Leeming Lane near Bedale, H.C.! In slow streams at Newsham Carr near Thirsk, adhering to *Utricularia vulgaris*, W. Foggitt, 1855.
20. ***Lower Tees***—Ballast hills near Middlesbrough (alien), J. W. Watson.
22. ***Upper Derwent***—Mr. W. Bean, in his List of Scarborough Shells, enumerates this species, but judging from other species named in his list, the area of his investigations must have been very extensive. It does not appear in a list for the same place kindly furnished by Mr. J. H. Ashford, late of Scarborough.
24. ***Holderness***—Abundant in the River Hull at Grovehill, where the specimens are thickly encrusted with a calcareous deposit, J.D.B. Barmston Drain, J.D.B.

Var. nigrescens Colbeau.

Shell black or blackish.

3. ***Vale of York***—River Ouse near Bishopthorpe, W. C. Hey; very common in the River Ouse at York, especially amongst the stones just above the railway bridge, R.M.C.

Var. trifasciata Colbeau.

Shell ornamented with three spiral dark bands.

17. ***Wensleydale***—One specimen in the River Ure at Hackfall!

Var. **undulata** Colbeau.

Shell with some transverse dark bands.

17. *Wensleydale*—One specimen in the River Ure at Hackfall!

——:o:——

Family PALUDINIDÆ.

Genus PALUDINA Lam.

This genus is widely distributed throughout the Northern Hemisphere, to which portion of the globe it was formerly considered to be confined. Several species have however been recently described by Mr. Smith and others from Australia, thus extending its range southward. The Australian species are all characterized by spiral sculpture and absence of colour bands below the periphery.

We have, however, but two species in Britain, neither of which appear to have been found north of Yorkshire except in ballast.

This genus does not possess the cartilaginous stylet in the stomach that the Bythiniæ have.

The Paludinæ are stated to bury themselves in the soil for weeks or months together.

——:o:——

Paludina contecta (Millet).

Rare and very local.

This species formerly abounded near York, where it was first found by Mr. Bean, of Scarborough. Dr. North, of York, writes: "More than twenty years ago *P. contecta* was abundant in a ditch or brook by the side of the River Ouse at Clementhorpe, just outside the city towards Bishopthorpe. The place is now a foul ditch and a nuisance to the district, and the shells and other interesting objects are gone."

The Rev. W. C. Hey says: "dead shells occurred at Fulford two years ago, but none since, I believe. I fear it is now extinct."

Dr. E. Lankester found this species in ditches near Askern, about 1842, and Mr. H. Shaw, of Leeds, in 1881 found several dead but fresh specimens in the stream running from, and in the pool there. Subfossil shells of a dwarf and stunted form are thrown up by the moles in the fields about Askern.

The species is however not yet extinct in Yorkshire, and its claim to be regarded as a member of the Yorkshire fauna has been re-established by Mr. W. Eagle Clarke, who in company with Mr. W. Denison Roebuck, succeeded in finding a specimen in the Gravel Drain on the Lincolnshire border in April, 1883, whilst engaged in a special search for it.

All the Yorkshire specimens we have hitherto seen are dwarfed in size and are hardly one-third of the volume of some of the same species from Lancashire localities.

This species, according to the observations of Mr. T. Ball, of Brigg, hibernates socially. "In almost every case where a specimen could be seen, there was in reality a considerable number all huddled together and buried in one common hole."

Dr. Jeffreys, at p. 36 of British Conchology, says "the epidermis of the last formed whorl in the young shell, when it leaves its mother, has three transverse rows of recurved bristles, which in after growth are replaced by the colored bands that encircle adult shells, the formation of these bands as well as of the bristles being caused by different organs which are successively developed in the same part of the mantle." According to our observations this is hardly correct. The three spiral lines of bristles encircle the last whorl, and the two upper lines are continued on all except the apical whorl. The color bands are present at and before birth and not afterwards developed. In addition also to the brownish bands there are three somewhat irregular blackish bands on the mantle and plainly visible throngh the transparent shell, formed of a number of blackish

spots and streaks more or less closely agglomerated; the blackish and pale-brown bands are not exactly coincident with each other except at the aperture, and neither are on the same spiral plane as the rows of hairs. Three fleshy processes of the mantle which are placed correspondingly to the rows of bristles would appear to be the organs of their formation.

Mr. W. G. Binney, in "Land and Fresh Water Shells of North America," says, in speaking of *Vivipara contectoides* Binney, "It has been by some authors considered identical with that species [*P. contecta* Millet], and with the exception that the American form has four spiral bands upon the body whorl, while the European is described as having but three, I can detect no specific difference between them. It is more upon its geographical distribution that I base my opinion of its being distinct."

We would point out that *P. contecta* not only differs in its larger size, but has a greater number of whorls, a much more open umbilicus, and the colour bands are somewhat differently disposed, and we certainly regard it as distinct from *contectoides* Binney.

Several varieties have been described by various conchologists but none have as yet been recorded for our county.

3. *Vale of York*—Formerly abundant in a ditch near Clementhorpe, York, but none have been found of late years, S. W. North.
4. *Humber*—The Rev. R. D. Maxwell includes this in his List of Goole Shells, but as the Goole district is defined to include an area of twenty miles radius, it is quite possible that his specimens were collected at one of the other localities mentioned, or even in Lincolnshire, a county in which the species is abundant.
5. *Hatfield and Thorne*—Gravel Drain, W. Eagle Clarke!
7. *Went Vale*—Ditches near Askern Pool, E. Lankester, 1842; several fresh but dead shells in the stream running from and in the pool at Askern, in 1881, H.S.!
10. *Colne*—Huddersfield, introduced, J.Wh. [probably from Lancashire].
22. *Upper Derwent*—The late Mr. W. Bean records this species for Scarborough, but it is very probable the locality he obtained his specimens from was near York. It does not appear in the list of Scarborough shells, kindly furnished by Mr. J. H. Ashford.

Paludina vivipara (L.).

Locally abundant.

Vivipara costæ Heldreich.
Paludina Duboisiana Mousson.
Paludina subfasciata Bourg.

The *V. costæ* described by Heldreich from Turkey would appear to be referable to this species. Dr. Kobelt also refers to its synonymy, *Paludina Duboisiana* Mous., and *Paludina subfasciata*, Bourg.

Lovell Reeve regards, we think erroneously, the *Vivipara contectoides* of Binney, a native of the United States, as a variety of this species "lighter and more inflated in growth." It appears to us to have more affinity with *P. contecta* Millet. It is, however, but right to add that most authors prior to Binney were of the same opinion as Mr. Reeve.

The Rev. W. C. Hey, M.A., of York, records the effect of sudden frost upon the species when left unexpectedly exposed on the bank. "On January 19th, 1880, the Ouse at York was considerably lowered by opening Naburn Lock, and a very large number of freshwater shells were consequently left on the banks. A hard frost set in the same night (the thermometer registering eight degrees of frost), and continued till the lock was closed. The mud banks became perfectly hard to the water's edge, and *Paludina vivipara*, which occurs in great abundance, was unable to resist the frost in spite of its operculum and thick mud coat. All the specimens I examined were dead. Some had made a futile attempt to bury themselves, but as they live in a stony part of the river, they had not a fair chance." Mr. Hey infers that this species lives too deep to be accustomed to a temperature below thirty-two degrees.

M. Joly has recorded that he has submitted this species to a temperature of 23° Fahr., after keeping them without food for three months, and on dissolving their icy prisons found them all still living.

Mr. R. M. Christy, writing of it in the River Ouse at York, says "when the river is at its full height they are difficult to get, but when lowered they can be procured in any quantity. Above York it is not uncommon, but below it is clustered round the mouths of some small ditches on the Bishopthorpe side. No doubt they preferred the sewage and filth that was in the water. One specimen was obtained 40 mill. long.

Dr. Jeffreys says that the Rev. Dr. Gordon has found this species at Findhorn, in the Moray Firth district, but Dr. Gordon expressly states it to have been a dead ballast shell, and not indigenous to the locality.

P. vivipara seems from our experience to ascend after midday from the depths of the canal or river and approach more closely to the surface. We have observed this peculiarity at different times. In the early morning all were deep in the water or resting on the bed of the canal, but as the day advanced they crawled into the shallows or ascended the canal sides to the surface.

Heaps of broken shells are sometimes found by the canal sides, evidently destroyed by rats.

3. ***Vale of York***—Profusely abundant in a stony part of the River Ouse below York, very fine in the Foss, Rev. W. C. Hey.

4. ***Humber***—Very abundant in the canal at Selby, in the places bare of vegetation, amongst the mud and stones! Goole, R.D.M.; in disused lime pits formerly connected with the river at Brotherton, not very common!

7. ***Went Vale***—Madder Close, Askern, E. Lankester, 1842.

8. ***Dearne***—Wombwell, near Barnsley, H.C.! Wakefield and Barnsley Canal at Barnsley, A.P.T.! near Doncaster, Rev. W. Hincks, 1840.

12. ***Lower Calder***—Pretty common in the Wintersett Canal, W. E. Brown; New Miller Dam, J.W.; Wakefield and Barnsley Canal at Wakefield! at Agbrigg! near Heath Common! Royston! and between Walton and Cold Hiendley, A.P.T.! rarely in a stream near Sandal Castle, J.H.

13. ***Airedale***—Aire and Calder Canal at Swillington, H.S.!

Var. nov. albida.

Shell white.

"Two specimens of this variety labelled *Paludina vivipara* var., are in the York Museum, where they were deposited by Prof. Phillips. The precise locality is unknown, but it is most probable they are from our county." R. M. C.

——:o:——

Genus BYTHINIA Gray.

The genus *Bythinia* differs from *Paludina* not only by its oviparous character, but by the possession in a lobe or pouch of the stomach of a cartilaginous cylinder analogous to the crystalline stylet of some of the conchifera, and also in the absence of the horny jaws which *Paludina* possesses.

Bythinia tentaculata (L.).

B. patavina De Betta.

Very abundant and widely diffused.

The *B. patavina* of De Betta is, according to Dr. Kobelt, a variety of this species.

B. tentaculata, though not a native of North America, has recently been introduced into that country, having been first noticed in 1879, at Oswego, N.Y.; a little later in the Champlain Canal at Waterford and Troy; and early in 1880 was found plentifully in the Erie Canal at Syracuse, N.Y. In some localities it is already abundant.

It would seem to be generally diffused throughout Yorkshire, as it is only absent from those districts for which we have been unable to obtain information.

The Rev. W. C. Hey has found at Askham, near York, a variety with an encircling white band at the periphery, and Mr. R. M. Christy records an elongated form from the River Foss,

which may possibly be the variety *producta* of Menke, but we have not seen specimens of either.

The ova of this species have been described as being placed in three long rows. According to our observations this is not always the case. Some specimens collected in July deposited ova a few days afterwards, in two rows of about eleven eggs each, terminating in single ones. The gelatinous envelope of each egg was pentagonal in shape, the acute angles always directed inwards and alternating with each other, the nucleus small and of a yellowish colour, and placed near one side, the terminal ones round, except where joined to those contiguous. The capsules were transparent, and the total length was about 18mill., the breadth 3mill.

B. tentaculata appears to have in some degree the peculiarity of *P. vivipara* of ascending to shallower water after midday.

According to Mr. G. S. Tye, who has given some attention to the subject, this snail suspends itself after floating by a mucous thread, which is usually attached to the surface of the water.

Subfossil specimens are thrown up by the moles about Askern, where it is in immense quantities beneath a thin stratum of peat and underlaid by calcareous tufa.

1. ***Mersey***—Greenfield Canal, J.Wh.
2. ***Lune and Ribble***—Common in a pond close to the River Ribble at Gisburn, W.D.R. !
3. ***Vale of York***—Common and fine in a dyke near Church Fenton, H.P.; common in Bishop Dyke and various ditches near Hambleton ! and Milford ! common in a dyke at Ryther, H.P.; Tadcaster, H.C. ! unusually fine in Askham Bog, near York, W. C. Hey; River Foss, W. C. Hey; dead shells among mud &c. thrown out of the Foss Beck near Catterton, F. G. Binnie; Hobmoor, near York, R.M.C.
4. ***Humber***—In a ditch near the canal and in the canal at Selby ! Milford, in ditches ! Goole, R.D.M.; Drax, R.D.M.; Camblesforth, R.D.M.; Howden ! F. Emsley, of Leeds ! stream at Castleford !

Canal near Gateforth! and near Burton Hall! Snaith, R.D.M.; dykes about Hambleton! Breighton, J.D.B.

5. *Hatfield and Thorne*—Abundant in a ditch parallel with Black Bank Drain, W.D.R.!

6. *Trent*—Conisborough, J.W.

7. *Went Vale*—In a stream running from the pool, Askern! common in a ditch in Cowick Park, W.D.R.! Pontefract, J.C.; sparingly in the River Went, W. E. Brown; a pond near Went Bridge, Hugh Richardson; in Ackworth School Canal, the Mill Dam Dyke, and Plantation Mill Dam, G. F. Linney; abundant at Ackworth, invariably covered with an earthy incrustation, C.A.

10. *Colne*—Abundant in the canal at Huddersfield, J.Wh.

11. *Upper Calder*—Halifax, H.C.! abundant in canal at Elland, J.Wh.

12. *Lower Calder*—Common throughout the Wakefield district, J.H.; abundant in the Wakefield and Barnsley Canal near Wakefield, H.P., and common, but small, at Royston! New Miller Dam, J.W.; Pond at Normanton! very abundant in mill stream at Wintersett, W. E. Brown.

13. *Airedale*—Leeds and Liverpool Canal at Armley! Kirkstall! Newlay! Calverley! Saltaire! Bingley! and Micklethwaite! Frizinghall Dam, W. West, of Bradford! Aire and Calder Canal at Oulton! stream at Allerton Bywater! common at Lofthouse, G. Roberts.

17. *Wensleydale*—Ponds at Staveley! common in ditches, and occasionally in the River Ure near Hackfall, J. D.; Canal at Ripon, J. Ingleby! one dead shell in a horse pond at Jerveaulx Abbey, W.D.R.! Snape, H.C.! one in a pond at Masham, H.P.

18. *Swaledale*—Common in ditches and stagnant ponds about Thirsk, J. H. Davies, 1855.

20. *Lower Tees*—General in the district, J. W. Watson; Pond near Redcar, C.A.; Beck between Redcar and Marske, C.A.

22. *Upper Derwent*—Scarborough, W.B. and J. H. Ashford.

23. *Chalk Wolds*—Abundant and generally distributed around Hull, J.D.B.; fine in Long Lane, J.D.B.; common at Figham, J.D.B.; River Hull, J.D.B.; Leckonfield Moat, J.D.B.; Swinemoor, J.D.B.; Burlington, J.S.G.; Londesborough, J.D.B.; plentiful in the River Hull at Driffield, L.B. Ross!

24. *Holderness*—Ditch near Hornsea Bridge, J.D.B.; Leven Canal, J.D.B.; Common in Hornsea Mere, W.D.R.! plentiful in the river near Foston, L. B. Ross!

Var. excavata Jeffr.

7. *Went Vale*—Askern, J.C.

12. *Lower Calder*—New Miller Dam, J.W.; Kirkthorpe, J.H.

Var. albida Rimmer.

Shell white.

4. *Humber*—One specimen in a sluggish stream at Castleford in 1865 !

Var. ventricosa Menke.

7. *Went Vale*—Askern district, J.W.

Monst. decollatum Jeffr.

4. *Humber*—Stream at Castleford!
7. *Went Vale*—Askern, J.W.
10. *Colne*—Plentiful in the Elland Canal, J. Wh.
11. *Upper Calder*—Plentiful in the Huddersfield Canal, J.Wh.
12. *Lower Calder*—Plentiful at Kirkthorpe, J.H. ; New Miller Dam, J.W.

——:o:——

Bythinia Leachii (Sheppard).

Local and occasionally abundant.

Subfossil specimens of this species are thrown up by the moles about Askern.

3. *Vale of York*—Common but not fine in the River Foss and the small stream running into it at the third lock from its junction with the Ouse, R.M.C.
4. *Humber*—Snaith, R.D.M. ; Drax, R.D.M. ; Knottingley, J.W. ; ditch near Gateforth! abundant amongst decaying vegetation in the Selby Canal at Selby and near Burton Hall! ditch at Bubwith, J.G. !
5. *Hatfield and Thorne*—Common in a ditch parallel with Black Bank Drain, W.D.R. !
6. *Trent*—Conisborough, J.W.
7. *Went Vale*—Askern Pool, E. Lankester, 1842 ; plentiful in a ditch at Askern ! Nostel Lake !
12. *Lower Calder*—Found commonly amongst decaying sedges at the sides of the Wakefield and Barnsley Canal, J.H., at Agbrigg, H.P., and at Oakenshaw ! New Miller Dam, J.W.

13. *Airedale*—Aire and Calder Canal near Fleet Mills, Oulton, H.S. !
20. *Lower Tees*—Appears to be absent from the district, J. W. Watson.
22. *Upper Derwent*—It appears in the late Mr. Bean's list of the shells of Scarborough, but has not been found by Mr. J. H. Ashford.
23. *Chalk Wolds*—Several in dykes near Brough, J.Wh. ! scarce in a ditch at Figham, near Beverley, where the water is strongly impregnated with iron, J.D.B.; Beverley, W. C. Hey.
24. *Holderness*—Ditch parallel with Leven Canal, J.D.B.; scarce in Barmston Drain, J.D.B.; Hornsea Mere, W.D.R. !

Var. **albida** Rimmer.

Shell white.

12. *Lower Calder*—In the Wakefield and Barnsley Canal at Oakenshaw !

Monst. **decollatum** Jeffr.

12. *Lower Calder*—In the Wakefield and Barnsley Canal at Oakenshaw !

:o:

Family VALVATIDÆ.

Genus VALVATA Müller.

Valvata piscinalis (Müller).

Valvata Tolosana St. Simon.

Common, but local.

Judging from specimens of *V. Tolosana* received from M. Vimont, of Toulouse, we are inclined to consider it as a small variety of this species.

Dr. Jeffreys considers the *Valvata tricarinata* of Say, a native of North America, to be a variety of *V. piscinalis*. The dentition of the two species is different, and the general aspect seems to us to favour its specific distinctness from our form.

It appears to be fond of basking on the soft mud in the sunny shallows of gently flowing streams or ponds. M. Laurent has noticed it to have the power of spinning a downward thread.

Subfossil shells are thrown up by the moles in the neighbourhood of Askern.

2. ***Lune and Ribble***—Pond close to the River Ribble at Gisburn, W.D.R.!
3. ***Vale of York***—Plentiful in streams and dykes about Milford! South Milford! Bishop Dyke at Milford! and Hambleton! abundant in the River Foss, W. C. Hey; Askham, W. C. Hey; Malton, J.D.B.; common in a Mill goit at Newthorpe! River Ouse at Naburn and Bishopthorpe, R.M.C.; River Derwent at Kirkham Abbey, W. C. Hey.
4. ***Humber***—Goole, R.D.M.; ditch near Gateforth! in a ditch near canal at Selby!
5. ***Hatfield and Thorne***—Scarce in Gravel Drain, W.D.R.! common in a ditch parallel with Black Bank Drain, W.D.R.!
6. ***Trent***—Conisborough, J.W.
7. ***Went Vale***—Bentley near Doncaster! ditch near Askern! occasionally in immense abundance in the River Went at Went Bridge! common in the mill pond at Ackworth, C.A.; Ackworth School Canal, G. F. Linney; Hemsworth Dam, H. N. Brady; Nostel Lake, H. Richardson.
12. ***Lower Calder***—Moderately common in the Wakefield and Barnsley Canal, J.H., at Wakefield, H.P.; abundant at Wintersett Reservoir, C.A.; New Miller Dam, J.W.
13. ***Airedale***—Bingley, J.W.; a few in a reach of the river Aire at Swillington, in 1872!
17. ***Wensleydale***—Snape, H.C.!
18. ***Swaledale***—Amongst *Fontinalis antipyretica* in the Codbeck, Thirsk, J. J. Binns, 1855; not unfrequent in ditches at Newsham Carr, J. H. Davies, 1855.
20. ***Lower Tees***—Apparently not occurring in the district, J. W. Watson.
22. ***Upper Derwent***—Appears in the late Mr. Bean's catalogue of Scarborough shells, but is not included in Mr. J. H. Ashford's.
23. ***Chalk Wolds***—Moderately abundant at Swinemoor, in a ditch at Figham, and in the River Hull, J.D.B.; moderately plentiful in the canal and ditches at Brigham, L. B. Ross!
24. ***Holderness***—Leven Canal, J.D.B.; Skidby Drain, J.D.B.; moderately plentiful in the canal and ditches at Foston, L. B. Ross!

Var. depressa C. Pfr.

3. ***Vale of York***—There are specimens in the British Museum labelled as from York, R.M.C.

York in 1879 or 1880 (Wilson, Ent., p. 90).

B. tenuicornis *(Kl.)* See second list, p. 64.

NEMATINA.

× **Hemichroa alni** *(L.)* Near York, three specimens bred in 1879 or 1880 (Wilson, Ent., p. 90).

× **Cladius viminalis** *(Fall.)* Near York, 1879 or 1880, the larvæ found under the leaves of the balsam and black poplars, seven or eight together (Wilson, Ent., p. 89).

Crœsus septentrionalis *(L.)* See first list, p. 28.

York, visited the locality during 1879 and 1880. In the former year I noticed it upon alder, birch and hazel, stripping the bushes: in 1880 I noticed it only on birch, but in greater numbers than in the previous year. It is not, I believe, a species of general occurrence, though when it does occur it is found in some abundance, from its being a gregarious feeder (Wilson, Ent., p. 88).

× **C. varus** *Devill.* York; I had the good fortune to meet with a number of larvæ in 1879, feeding upon some small alder-trees in this neighbourhood (Wilson, Ent., p. 89).

× **C. latipes** *Devill.* Near York. I met with a dozen larvæ on some birches in a hedgerow in 1879 (Wilson, Ent., p. 88).

Nematus capreæ *Pz.* See first list, p. 28. Near York, five specimens bred in 1879 or 1880 (Wilson, Ent., p. 90).

N. conductus *Ruthe.* See first list, p. 28.

× **N. hortensis** *Htg.* One example, 1881, Holgate (Wilson).

× **N. myosotidis** *Fab.* Near York, three specimens, 1879 or 1880 (Wilson, Ent., p. 90).

× **N. luteus** *Pz.* One example, seated on an alder-leaf, Holgate, 1881 (Wilson).

N. bilineatus *Kl.* See first list, p. 28. Near York, 1879 or 1880, five specimens bred (Wilson, Ent., p. 90).

N. ribesii *Scop.* See first list, p. 28.
Huddersfield, 1879, very common (S. D. Bairstow).

York, 1880, very abundant (Wilson, Ent., p. 90).

York, 1881: there is a little fact in connection with this species which may be worth recording, as it is said that some species of sawflies are without males. One fine morning in the month of May I was strolling round the garden, when my attention was suddenly called to a swarm—I may say, for it very much reminded me of a swarm of bees—of about one hundred or more of the males of this species suddenly congregated together and flying about apparently in a state of excitement. On looking about me for the cause of this strange gathering my eye rested on fifteen or twenty on a heap; I pushed them aside to see what was up, and to my surprise there was a newly-emerged female (Wilson).

× **N. miliaris** *Pz.*=**virescens** *Htg.* Huddersfield, 1879 (Bairstow).

York, five specimens bred in 1879 or 1880 (Wilson, Ent., p. 90).

N. viminalis *L.* See first list, p. 28.

York, 1879 and 1880. In pea-shaped and round galls, mainly on the under side of leaves of willows. I met with it near York on two or three bushes, the two different-shaped galls being on bushes very near each other. Whether the bushes on which both galls were found are one species of willow, or two distinct species, I cannot exactly say: only this appeared to be certain, that the same insect is produced from both (Wilson, Ent., p. 90).

× **N. pedunculi** *Htg.* York, 1881, found the galls of this species sparingly on narrow-leaved sallows. Named by Mr. E. A. Fitch (Wilson).

N. gallicola *West.*=**vallisnieri** *Htg.* See first list, p. 28.

Cryptocampus pentandræ(*Retz.*)=**medullarius**(*Htg.*)

Mr. Peter Cameron informs me that the insects recorded by Mr. Peter Inchbald as *C. angustus* Htg., were wrongly named and really pertained to this species. Therefore the record at p. 28 of the present volume of the Transactions should be corrected accordingly (Roebuck).

CIMBICINA.

Cimbex sylvarum *Fab.* See first list, p. 28.

[**C. maculatus**: vide p. 27].

Trichiosoma betuleti *(Kl.)* Storthes Hall, Huddersfield, cocoons found in March, 1879, sent to me by Mr. S. L. Mosley (Roebuck).

Bishop Wood (Naturalist, June, 1880, v. 173).

Abounds in the larva state on the hawthorn hedges round York (Wilson, Ent., p. 88).

Abia sericea *(L.)* See first list, p. 29.

The larvæ of this species were found by Mr. G. T. Porritt, F.L.S., feeding plentifully on Scabiosa in an old rough field adjoining Lepton Great Wood, Huddersfield, on the 28th of July, 1882. They were determined by Mr. P. Cameron.

Zaræa fasciata *(L.)* See first list, p. 29.

HYLOTOMINA.

Hylotoma fuscipes *Fall.*=**violacea** *Kl.* See first list, p. 29.

× **H. ustulata** *(L.)* York, one beaten out of oak, 1881 (Wilson).

LYDINA.

× **Lyda flaviventris** *(Retz.)*=**clypeata** *Kl.*

Mr. Thomas Wilson "was fortunate in obtaining a specimen of this species during the summer of 1879, amongst young currant trees" near York (Ent., p. 90).

In 1881 I met with this insect again in the perfect state (two examples) and I am happy to say that I have met with it in the larval state. During August I found several of the webs of this larva; they reminded me of those of the Small Eggar *(Eriogaster lanestris)* although they were different from that species in colour, having a faded orange appearance. The larvæ themselves are orange with darker longitudinal lines until the last moult, when the dark lines disappear. At this stage of their existence, if the web is in any wise disturbed the larvæ wriggle out, let themselves

down to the ground and quickly bury themselves; I was much interested in watching the operation (Wilson).

L. hortorum *Kl.*=L. cingulata *Steph.* See first list, p. 27.

× L. sylvatica *(L.)* Captured amongst birch in Acomb Wood, 1881 (Wilson).

CEPHINA.

× Cephus pygmæus *(L.)* York, 1881: scarce, as far as my observation goes (Wilson).

Family SIRICIDÆ.

Sirex juvencus *L.*

York Minster: see Morris' Naturalist, 1854, p. 158.

I saw a specimen in 1880 in the possession of Mr. Firth of Bradford, taken near that town (Roebuck).

S. gigas *L.*

Yorkshire: see Morris' Naturalist, 1854, p. 158.

Masham and Leeds, 1879 (Nat., v. 78).

Carlton near Thirsk, Sep. 22nd, 1881.

Almondbury near Huddersfield (Rev. G. C. B. Madden in Nat., Nov., 1881, vii., 66).

Very small: Chapeltown Road, Leeds, a ♀, measuring exactly 1 inch from head to end of ovipositor: Oct. 19, 1880 (Roebuck, Nat., Nov. 1880, vi. 59).

At sugar at Sandburn (W. Prest, Ent., Sep. 1880, xiii., 219).

Leeds, 1880 (Nat., Nov. 1880, vi. 59).

Family CYNIPIDÆ—Gallflies.

× Cynips quercus-gemmæ *L.* (=fecundatrix *Htg.*)

Specimens sent from Huddersfield by Mr. S. D. Bairstow were returned with this name by Dr. S. C. Snellen van Vollenhoven, in 1879.

× C. Rosæ-spinosissimæ *Inchbald.* See the Ent. W. Intell., Sep. 7, 1861, x. 178, and Zool., 1861, xix. 7824, for Mr. Inchbald's account of this insect, which is in all probability from Yorkshire.

× **Heptameris pygmæa** *Dbm.* Mr. Peter Cameron informs me that he has this insect—one of the parasitic Cynipidæ—from Scarborough.

Family ICHNEUMONIDÆ.

[The species included in the following list are those collected and determined by Mr. S. D. Bairstow and Dr. S. C. Snellen van Vollenhoven, and those recorded by Mr. T. Wilson in a paper on "Ichneumonidæ at York" published in the Naturalist, May 1881, vol. vi., p. 153, together with a further series of captures by Mr. Wilson in 1881 which have not hitherto been published. No less than 59 species are here added to my former lists, showing that, thanks to the labours of Messrs. Bairstow and Wilson, some good work has been done in respect of this important group of Hymenoptera. Mr. Wilson's captures were all made in the West Riding, within a very few miles of York city, and in the determination of his insects he was assisted by Messrs. Bridgman and E. A. Fitch. I add the remarks of Mr. Bairstow, introductory to his report, which, owing to his now having settled in South Africa, will probably be his last for some years.—W. D. R.]

It is with feelings of painful regret that I handle my pen in writing a report—which I fear will be my last for some years—of this group. Regret, because I have to conclude my work so recently begun, because I have to sever myself (though not my heart and good wishes) from the midst of my many and dear Yorkshire naturalist-friends. Regret also in the remembrance that a helping hand which was ever ready and willing to assist me in any conceivable manner has been suddenly and irrevocably withdrawn. A few short months ago Dr. Snellen van Vollenhoven of the Hague wrote to me in the following strain: 'You need be in no fear of *troubling* me to name specimens for the Yorkshire naturalists. Such assistance as lies in my power, this I do gladly and affectionately give, and wish your hard working Union God-speed and success in all branches.' Hours and hours were

devoted by this true naturalist and gentleman to naming the insects which on behalf of the Union I have from time to time forwarded to him. Soon after this communication I received a box of insects with the intimation of Dr. Vollenhoven's decease. I was not altogether unprepared for the sad news, as he had in one of his letters remarked in his quaint English, 'Do not be surprised if you should obtain a long ensueance [interval] of silence. I have been indisposed now for some time, and I fear results which will compel for me a cessation of our pleasant letter-talk. I send to you returned the case of insects, named to the best of my poor endeavours.' Dr. Vollenhoven, eminent and distinguished as he was, was not too clever to assist beginners, as witness the following extract from one of his epistles: 'You need never to apologise to me. The ladder of nature is enough broad, and high, and strong, to bear the weights of all those who desire to climb.'—S. D. B.

ICHNEUMONIDES.

× **Chasmodes motatorius** *(Fab.)* Female taken May 17, 1879, in a stump containing *Rhagium bifasciatum* at Adel Bog near Leeds by Mr. Roebuck. Chiefly recognised as a parasite of *Nonagria typhæ.*

One found in the early spring of 1881 under bark of oak, Acomb Wood (Wilson).

× **Ichneumon lineator** *Fab.* Male var. (?) Vollenhoven. Taken at Askham Bog near York, June 2nd, 1879 (Bairstow).

× **I. derasus** *Wesm.* Male (?) Vollenhoven. Given to me by Mr. Charles Smethurst of Leeds, labelled "bred from *Tæniocampa gothica*, Foundry Lane, Wortley, Leeds." This species is the var. *stigmate rufo* Gr., of *Ichn. comitator* L. (Bairstow, 1879).

I. trilineatus *Gm.* Wakefield, 1879, C. W. Richardson (Bairstow).

Two examples in 1879 or 1880 by searching under bark of alder trees in Askham Bog, York (Wilson, Nat., vi. 153).

I. vaginatorius *L.* York, 1881, one example captured on an umbel of *Heracleum sphondylium* (Wilson).

Ichneumon luctatorius *L.* Gunthwaite near Penistone, a male in 1879 (Bairstow).

Found in Edlington Wood near Doncaster, 1879 or 1880 (Wilson, Nat., vi. 153).

× **I. raptorius** *L.* Yorkshire; bred by S. L. Mosley, 1879 (Bairstow).

× **I. nigritarius** *Gr.* Norledge Moor, 1879 (Bairstow).

I. fabricator *Fab.* Reported from the following additional localities: Leeds, W. D. Roebuck; Wakefield? C. W. Richardson; Mirfield, S. D. B.; Gunthwaite near Penistone, S. D. B.; all in 1879 (Bairstow).

Several examples at Holgate during the season of 1881 (Wilson).

× **I. curvinervis** *Holmg.* Two found at Holgate, 1881 (Wilson).

× **I. pallidatorius** *Gr.*=**rufifrons** *Gr.* One captured in Acomb Wood, 1881 (Wilson).

× **I. lanius** *Gr.* Three specimens from oaks, Holgate, 1881 (Wilson).

× **I. tibiator** *Gr.?* Yorkshire, 1879, bred (Bairstow).

× **Hoplismenus extensorius** *(L.)* Appears to be new to Britain: not in Marshall's Catalogue of British Ichneumonidæ, 1872.

Yorkshire, 1879; ♀ *nov.* Vollenhoven. "Seems to be var." (Bairstow).

× **Exophanes occupator** *(Gr.)* Yorkshire, 1879, no locality specified, C. W. Richardson (Bairstow).

Amblyteles armatorius *(Forst.)* Bred from Bishop's Wood specimens of *Notodonta camelina* by Mr. Charles Smethurst, June 7, 1878. Ilkley, a male in 1879 (Bairstow).

Two examples in September, 1881, amongst young oak trees, Holgate (Wilson).

× **A. oratorius** *(Fab.)* Male bred by Mr. John Grassham of Leeds, June 13th, 1878. A fine specimen from Healey House near Huddersfield, 1880 (Bairstow).

× **Amblyteles crispatorius** *(L.)*=**xanthius** *(Gr.)* Male var., Bradley Wood, Huddersfield, 1879 (Bairstow).

× **A. vadatorius** *(Rossi)*. Goole, 1879 (Bairstow).

× **Trogus alboguttatus** *Gr.* A fine male taken at Bishop's Wood by Mr. Charles Smethurst, Aug. 5, 1878 (Bairstow).

× **Eurylabus dirus** *Wesm.* Near York, bred by Mr. Thomas Wilson, who was not certain about its host (Nat., 1881, vi. 153).

× **Platylabus pedatorius** *(Fab.)* Goole, 1879 (Bairstow). York, 1879 (Wilson, Nat., vi. 153).

× **Phæogenes candidatus** *(Gr.)?* Taken in Acomb Wood near York, 1881 (Wilson).

× **Alomyia debellator** *(Fab.)* Captured at Holgate near York, 1881 (Wilson).

CRYPTIDES.

Phygadeuon variabilis *Gr.* Marsh, near Huddersfield, 1879 (Bairstow).

× **P. bitinctus** *(Gm.)* Found in Acomb Wood, near York, 1881 (Wilson).

× **P. oviventris** *Gr.* York: two examples bred from *Emphytus cinctus* in May, 1881 (Wilson).

× **Cryptus parvulus** *Gr.* One example in Acomb Wood, 1881 (Wilson).

× **C. porrectorius** *(Fab.)*=**C. assertorius** *Fab.* Variety. Taken in Acomb Wood, 1881 (Wilson).

× **C. analis** *Gr.* Variety? Captured at Holgate in 1881 (Wilson).

C. migrator *(Fab.)* Yorkshire: Mr. S. L. Mosley gave me a female which he bred from some geometer larva: the record of locality, &c., is unfortunately lost (Bairstow).

OPHIONIDES.

× **Ophion luteus** *(L.)* Three examples picked up along a hedge-row, Holgate, 1881 (Wilson).

Ophion, species? In the Field, Jan. 3, 1880, Mr. Peter Inchbald records a "Flight of Ichneumon flies." He says that on the 18th Nov., 1879, while he was walking across a moor in the North Riding, he was surprised to see a whole flight of tawny-coloured Ichneumon-flies, of the genus *Ophion* ("most likely *O. luteum*"). They kept constantly alighting on the heads of ling and heather, though it was difficult to discern their object in doing so.

× **O. minutus** *Kriechb.* York, 1879 or 1880, captured flying along a hedgerow. "In the Entomologist, vol. xiii., page 54, Mr. Bridgman says of this species that it is new to the British list. This will, therefore, be the second British example." (Wilson, Nat., 1881, vi., 153).

× **Anomalon xanthopus** *(Schr.)* Yorkshire, S. L. Mosley, 1880 (Bairstow).

× **Agrypon canaliculatum** *(Ratz.).* Near York, September, 1879, beat out of a hawthorn hedge (Wilson, Nat., vi. 153).

× **A. septentrionale** *Holmgr.* New to Britain. Described in the Naturalist for July, 1879, iv. 185 (Bairstow). Huddersfield, female, 1879.

One example at Holgate in 1881 (Wilson).

× **Paniscus cephalotes** *Holmgr.* York, 1879 or 1880, bred from pupa of *Dicranura vinula* (Wilson, Nat., vi. 153).

× **P. virgatus** *(Fourc.)* York, 1881, two found in oak wood (Wilson).

× **P. testaceus** *Gr.* York, 1879 or 1880, two specimens, flying round some hawthorn bushes (Wilson, Nat., vi. 153).

Two examples in September, 1881, Holgate (Wilson).

× **Campoplex pugillator** *(L.)* One in Acomb Wood, 1881 (Wilson).

× **? Limneria dumeticola** *Holmgr.* York in 1881. Mr. Bridgman says of this "that it approaches nearest the description given by Holmgren of *dumeticola* but not exactly," and adds that "it does not agree with any recorded British Limneria" (Wilson).

× **L. longipes** *(Müll.)* One specimen at Holgate near York, 1881 (Wilson).

× **L. majalis** *(Gr.)* One specimen at Holgate, 1881 (Wilson).

× **Limneria, species affinis ruficincta** *Holmgr.* Among the Yorkshire specimens taken in 1878, which I sent to Dr. Snellen van Vollenhoven, is one named by him as above, of which no particulars are known (Bairstow).

× **Mesochorus confusus** *Holmgr.* York: caught in the act of ovipositing on the larva of *Nematus ribesii* in 1880 (Wilson, Nat., 1881, vi. 153).

× **Exetastes osculatorius** *(Fab.)*=**E. clavator** *Gr.* Yorkshire specimens bred in 1879 and sent to Dr. Vollenhoven, were returned by him with the name of *E. clavator* Gr. (Bairstow).

York, 1879 or 1880 (Wilson, Nat., vi. 153).

TRYPHONIDES.

Mesoleptus typhæ *Gr.* Two in Acomb Wood near York, 1881 (Wilson).

× **Euryproctus nigriceps** *(Gr.)* York, four specimens bred in 1879 or 1880 from cocoons of *Trichiosoma betuleti* (Wilson, Nat., vi. 153). From cocoons of the same insect found during the winter months, bred in 1881, fourteen examples, male and female (Wilson).

× **Perilissus pallidus** *(Gr.)* York, 1879 or 1880 (Wilson, Nat., vi. 153).

Mesoleius? species. York, 1881, bred from *Cræsus latipes*. About the end of June or beginning of July I took a brood of this sawfly, which made up safely in a flower-pot. They remained thus until September, when five of them came out as

second brood. Shortly after from the same pot came up an ichneumon-fly, which I forwarded along with others to Mr. Bridgman, and he returned unnamed and doubtfully a Mesoleius.

× **M. dubius** *Holmg.* Found at Holgate in 1881 (Wilson).

M. aulicus *(Gr.)*
× **M. opticus** *(Gr.)*

York, 1879 or 1880, hovering about some willow stumps containing larvæ and pupæ of *Sphecia bembeciformis*. These specimens came from the stumps, but whether from these larvæ or not I am not prepared to say (Wilson, Nat., vi. 153).

× **M. insolens** *(Gr.)* One example taken at Holgate, 1881 (Wilson).

× **Trematopygus atratus** *Holmgren.* York, 1881. This is returned as new to the British fauna. I have had several examples from *Cræsus septentrionalis*. Mr. Bridgman also informs me that "it has been bred on the continent from the same host" (Wilson).

× **Tryphon elongator** *(Fab.)* York, September 1879, beaten out of a hawthorn hedge (Wilson, Nat., vi. 153).

Captured amongst nut-bushes, Holgate, in 1881 (Wilson).

× **T. rutilator** *(L.)* Several along the Poppleton road, York, in 1881 (Wilson).

Cteniscus lituratorius *(L.)* Several examples taken and dozens more might have been; some in the act of ovipositing and numbers flying near and amongst gooseberry bushes, where its host *Nematus ribesii* feeds. This species lays its eggs in its victims when they have passed their second moult. York, 1881 (Wilson).

× **Metopius micratorius** *(Fab.)* A male captured on Rombalds' Moor in 1878. This is a fair addition to the list (Bairstow).

M. dentatus *(Fab.)* I took a very fine male on Goole Moor. It is worth noticing that this species is subject to great variation in size: all the insects I have received from the East Riding are considerably larger than those from the West Riding (Bairstow).

PIMPLIDES.

× **Perithous varius** *(Gr.)* Several captured at Holgate in 1881 (Wilson).

Pimpla turionellæ *(L.)* Two examples in 1881 at Holgate near York (Wilson).

× **P. rufata** *(Gm.)* Dungeon Wood, Huddersfield, male, Aug. 1879; also female taken on Seamer Moor near Scarborough, September 1878, by Mr. George Tyers (Bairstow).

York, 1879 or 1880, "captured at large" (Wilson, Nat., vi. 153).

P. scanica *(Vill.)* Occurs very commonly at Gunthwaite, in the lanes skirting the woods by the pool (Bairstow).

Several at Holgate in 1881 (Wilson).

× **P. oculatoria** *(Fab.)* Huddersfield, taken in an outhouse at Woodland Mount (Bairstow). Probably infesting spiders' eggs (Vollenhoven).

× **P. graminellæ** *(Schr.)* On hawthorn leaves, Healy House near Huddersfield, 1880. Determined by comparison with specimens sent by Dr. Capron of Shere, Surrey (Bairstow).

× **P. stercorator** *(Fab.)* York, 1879 or 1880, captured at large (Wilson, Nat., vi. 152).

× **P. brevicornis** *Gr.* One found in Acomb Wood, 1881 (Wilson).

× **P. nucum** *Ratz.* York, 1879 or 1880, "captured at large" (Wilson, Nat., vi. 152).

× **Lissonota cylindrator** *(Vill.)* Male and female found amongst alders at Holgate, 1881 (Wilson).

× **L. sulphurifera** *Gr.* York, beat out of a hawthorn hedge in September, 1879 (Wilson, Nat., p. 153).

[**Meniscus setosus** *(Fourc.)* I have an idea of having seen this insect a few years ago. Has any one observed it? As it is a parasite of *Cossus ligniperda*, I should be glad of some confirmation of the fact before recording it (Bairstow).]

Family BRACONIDÆ.

× **Bracon variator** *Nees.* Askham Bog near York, taken (in the cocoon I believe) by Mr. Charles Smethurst at the Y. N. U. excursion (Bairstow).

Apanteles glomeratus *(L.)* It is interesting to know, as I have observed in another place, that I have bred this parasite from the larvæ both of *Pieris brassicæ* and *P. rapæ*. Dr. Vollenhoven informed me that there could be no doubt of the identification in both cases. He had himself observed the same fact (Bairstow).

× **Microgaster globatus** *(L.)* Received from S. L. Mosley and G. T. Porritt (Bairstow).

Tribe OXYURA.

We have now for the first time to record the names of Yorkshire species pertaining to this group, Mr. Peter Cameron, of Glasgow, informing me that he has

× **Lagynodes pallidus** *(Boh.)* and

× **Galesus clypeatus** *Thoms.*, both from Scarborough.

Tribe FOSSORES.

The following captures were made near York during the season of 1881:

Nysson spinosus *(Fab.)* One example, Holgate (Wilson).

Gorytes mystaceus *(L.)* Three on the umbels of *Heracleum sphondylium*, Poppleton (Wilson).

Crabro cribrarius *(L.)* One on an umbelliferous plant, Poppleton (Wilson).

C. patellatus *Pz.* One on a poplar-leaf, Holgate (Wilson).

Cemonus unicolor *(Lind.)* Three examples bred from the pith of *Rosa canina*, Holgate (Wilson).

Tribe DIPLOPTERA—Wasps.

Odynerus spinipes *(L.)* Holgate, 1881 (Wilson).

O. parietum *(L.)* Two fine examples captured in rose-house, Holgate, 1881 (Wilson).

Vespa crabro *L.*

With reference to my remarks at pages 49 and 50 of the present volume, Mr. Robert Cook, writing to me under date of Feb. 10th, 1879, assured me that there was no mistake on his part in the record of the capture of the hornet, neither can he believe that there was any on the part of his friend (Mr. Crick) who brought the specimen to him, *when alive*, in a paper box, out of which Mr. Cook turned it into an insect net, killed, pinned and set it himself. His friend was not an entomologist and therefore could have had no interest in making a false statement. His statement of the capture was of its 'hovering about some bee-hives' which he had in a small garden behind the house he then occupied in Bishophill in the city of York. Mr. Cook had only become acquainted with him two or three weeks before (entirely by chance) they being both collectors of coins. Mr. Cook adds that had he been at the time as ardent a collector of Hymenoptera as he was of Lepidoptera, Coleoptera and old coins, he would no doubt have visited Mr. Crick's garden with the view of securing if possible specimens himself.

There never was any reason to doubt the genuineness of the occurrence spoken of by Mr. Cook, but his explanation reveals the fact that there was but a single specimen of the hornet, and that it was hovering about bee-hives. Thus an opening is made for a reasonable surmise that the single specimen was an accidental straggler. I saw *three* specimens in Mr. Cook's collection, all of them undoubtedly *Vespa crabro* (Roebuck).

V. norvegica *Fab.*

The Rev. W. W. Fowler records that on the 11th August, 1881, while he was collecting beetles on umbelliferous plants at Stamford Bridge near York, he captured a specimen of this wasp (E.M.M., March 1881, xvii. 237).

Tribe ANTHOPHILA—Bees.

Halictus leucozonius (*Schr.*) Taken near Leeds in the spring of 1879 by Mr. W. P. Weston, the specimens being identified by Mr. E. A. Fitch (Roebuck).

H. cylindricus (*Fab.*) Several (and one specimen of a variety) on flowers of ragwort, near York, 1881 (Wilson).

Andrena albicans (*Kby.*) Two males taken near Leeds by Mr. W. P. Weston in the spring of 1879, and named by Mr. E. A. Fitch (Roebuck).

Several in 1881 at Holgate, York, flying amongst herbaceous flowers (Wilson).

A. fulva (*Schr.*) Rastrick (see Nat., June 1880, v. 173).

A. chrysosceles (*Kby.*) Two in 1881 on herbaceous flowers, Holgate (Wilson).

Nomada ruficornis (*L.*) One amongst wood, Acomb Wood, 1881 (Wilson).

Bombus muscorum (*L.*) A few in 1881, Holgate (Wilson).

B. lapidarius (*L.*) A few at Holgate in 1881 (Wilson).

B. virginalis (*Kby.*) Wothersome nr. Bramham (Roebuck, Nat., June 1880, v. 173).

B. lucorum (*L.*) Holgate, abundant in 1881 (Wilson).

B. subterraneus (*L.*) One on flowers of rhododendron, Holgate, 1881 (Wilson).

YORKSHIRE NATURALISTS' UNION.

ENTOMOLOGICAL SECTION.

The Third Annual Meeting of the Section was held in Huddersfield on the 17th January, 1880, when the following officers were elected:—

President: Mr. G. T. Porritt, F.L.S., Huddersfield.
Secretary (re-elected): Mr. S. D. Bairstow, F.L.S., Huddersfield.

The Fourth Annual Meeting was held in the city of York on the 15th January, 1881, when the following officers were elected:—

President: Mr. William Prest, York.
Secretary: Mr. E. B. Wrigglesworth, Wakefield.

The Fifth Annual Meeting was held in Bradford on the 4th of March, 1882, when the following officers were elected:—

President: Mr. G. T. Porritt, F.L.S., Huddersfield.
Secretary (re-elected): Mr. E. B. Wrigglesworth, Wakefield.

The Annual Report of the Section for 1881, written by Mr. E. B. Wrigglesworth, Secretary, is printed in the Naturalist for May, 1882, vol. viii., pp. 157—163, and includes notes on the species of Lepidoptera and Coleoptera observed in the county during the year.

ENTOMOLOGICAL TRANSACTIONS OF
THE YORKSHIRE NATURALISTS' UNION.
VOL. 2.

LIST
OF
YORKSHIRE
LEPIDOPTERA.

BY
GEORGE T. PORRITT, F.L.S.,
MEMBER OF THE ENTOMOLOGICAL SOCIETY OF LONDON; PRESIDENT OF THE ENTOMOLOGICAL SECTION OF THE YORKSHIRE NATURALISTS' UNION.

LEEDS:
PRINTED FOR THE YORKSHIRE NATURALISTS' UNION
BY TAYLOR BROTHERS.
1883.

A LIST OF THE LEPIDOPTERA KNOWN TO OCCUR IN YORKSHIRE.

By G. T. PORRITT, F.L.S.,

President, Entomological Section, Yorkshire Naturalists' Union.

For four years, except when the state of my health has prevented it, I have been carefully collecting all the information I could respecting the lepidopterous fauna of our large county. And as a good portion of the county has been fairly well worked for many years, the result is a highly satisfactory list. I have to thank most sincerely kind friends all over the county for sending me the results of their investigations; and I have also culled largely from nearly all the available entomological literature. Specially must I acknowledge my great indebtedness to Mr. W. Denison Roebuck, the energetic secretary of our union, who for many years has assiduously collected together as published, nearly all the information relating to the entire fauna of Yorkshire. His collected records of the lepidoptera would of themselves have made a fair county catalogue, and he unreservedly placed them all in my hands for incorporation in the present list.

Many species and localities given in some of the older works, and indeed in some of the more recent records, I have been compelled to omit, the evidence in such cases not appearing to me to be sufficiently conclusive to warrant them a place.

In most cases I have thought it advisable to give an authority for the species, though in a great many instances the species and localities are also vouched for by several other lepidopterists

Generally the name of the town is given as sufficiently indicating the locality of the species, but in such well-known and favourite collecting grounds as Askham Bog, Edlington Wood, Bishop's Wood, Thorne Waste, etc., these are given in preference for such species as are known to occur there, though frequently they will also be found all round the adjoining city and towns of York, Doncaster, Selby, and Goole, respectively. I consider the four localities just alluded to about the best in our county for general collecting, we know at present. Of Askham Bog, Mr. W. Prest says he "never met with a place more prolific in insect life." And Mr. William Warren, of Cambridge, who collected at Doncaster from 1866 to 1876, says he knows "no place so rich in species, for so small a compass, as a small wood, one-and-a-half miles out of the town of Doncaster." Probably in the future, however, other at present comparatively unexplored spots will prove to be equally productive. The most unproductive parts are undoubtedly the cold, clayey districts of the South West Riding, and the paucity of lepidopterous life in them is certainly very discouraging to an enthusiastic student.

Mr. N. F. Dobrée's "Beverley" must often be understood to include the district of Holderness generally; while Mr. A. Doncaster's "Sheffield" takes in a considerable radius round that town, in order to include several favourite localities of the old Sheffield collectors, some miles distant.

For the sake of brevity I have generally given the initials of the person who vouches for the locality of a species, the lepidopterists thus represented being as follows:—

Allis, T. H. (the late), of York. ... ... T.H.A.
Birchall, Edwin, F.L.S., Derby Square, Douglas, Isle of Man, formerly of Leeds. ... E.B.
Butterfield, E. P. P., Wilsden, Bingley. ... ... E.P.P.B.
Carrington, J. T., F.L.S., Royal Aquarium, Westminster, London. J.T.C.
Carter, J. W., 24, Valley Street, Valley Road, Bradford. J.W.C.

Clarke, Wm. Eagle, F.L.S., 5, East View, Hyde Park Road, Leeds. W.E.C
Cook, Robert, 30, Collier Gate, York. ... ... R.C.
Dobrée, N. F., The New Walk, Beverley. ... ... N.F.D.
Doncaster, Arthur, 36, Strand, London, W.C., formerly of Sheffield. A.D.
Dunning, J. W., M.A., F.L.S., 12, Old Square, Lincoln's Inn, London, W.C. J.W.D.
Foster, Thomas, 6, Wren Lane, Selby. ... ... T.F.
Grassham, John, 11, Meanwood Street, Leeds. ... J.G.
Harris, Rev. G. P., M.A., Hawes Vicarage, Bedale, formerly of Richmond. G.P.H.
Harrison, John, 7, Victoria Bridge, Barnsley. ... J.H.
Hartley, Bernard, Park View, Pontefract. ... ... B.H.
Hawley, J., 55, Hall Gate, Doncaster. ... ... J. Hawley.
Hebson, R., Selby. ... ... R.H.
Horton, Rev. E., Wick, Worcester. ... ... E.H.
Inchbald, Peter, F.L.S., Fulwith Grange, Harrogate, formerly of Huddersfield. P.I.
Lawson, Major, High Street, Bridlington. ... ... M.L.
Lawton, P. W., Easington, Hull. ... ... P.W.L.
Madden, Rev. G. C. B., B.A., Armitage Bridge Vicarage, Huddersfield. G.C.B.M.
Morris, Rev. F. O., Nunburnholme Rectory, York. F.O.M.
Mosley, S. L., Beaumont Park, Huddersfield. ... S.L.M.
Pickles, James, Woodhouse Hill, Hunslet, Leeds. J.P.
Porritt, G. T., F.L.S., Huddersfield. ... ... G.T.P.
Prest, William, 13, Holgate Road, York. ... ... W.P.
Richardson, C. W., St. John's Grove, Wakefield. C.W.R.
Rockett, Miss Kate, Snaith Hall, Selby. ... ... K.R.
Roebuck, Wm. Denison, Sunny Bank, Leeds. ... W.D.R.
Rowntree, J. H., Westwood, Scarborough. ... ... J.H.R.
Sang, John, 6, Chestnut Street, Darlington. ... J. Sang.
Smethurst, Charles, 25, Chatham Street, Leeds. ... C.S.
Smith, John, Bramham. ... ... J.Sm.
Talbot, William (the late), Mount Pleasant, Wakefield. W.T.

Taylor, John W., Potternewton Lodge, Leeds. ... J.W.T.
Taylor, W. H., of London, formerly of Leeds. ... W.H.T.
Tyers, George, 68, Belle Vue Road, Leeds. ... G.T.
Varley, James (the late), Almondbury Bank, Huddersfield. ... J.V.
Warren, William, 51, Bridge Street, Cambridge, formerly of Doncaster. W.W.
Wilkinson, Thomas (the late), Scarborough. ... T.W.
Wilson, Thomas, Holgate, York. ... ... T. Wilson.

I have also availed myself of information contained in the following works and journals :—

Entomologist. Series.
Entomologist's Annual. 1855 to 1873.
Entomologist's Monthly Magazine. Series.
Entomologist's Weekly Intelligencer. 1856 to 1861.
Hobkirk's "Huddersfield, its History and Natural History." 1868.
Morris's "British Butterflies and Moths."
Naturalist. Old and New Series.
Newman's "British Butterflies." 1871.
Stainton's "Manual of British Butterflies and Moths." 1857.
Transactions of Yorkshire Naturalists' Union. 1877 to 1880.
Young Naturalist. 1879 to 1882.
Yorkshire Naturalist's Recorder. 1872-3.
Zoologist. Series.

The arrangement followed is that of M. Guenée, as compiled by the late Mr. Henry Doubleday in his "Synonymic List of British Lepidoptera," that arrangement being the one adopted in my own collection, and probably in most others in our county.

I believe that so far as the macro-lepidoptera are concerned, the list will be as nearly accurate as it is possible to make it; and I have no hope that many more additions will be made to the number of species. Of the micro-lepidoptera I cannot speak with as much certainty, as I know but little about the Tortrices, and still less about the Tineina, and have consequently had to rely

almost entirely on the lists supplied and on published information, without being able to give them the thoroughly sifting process applied to the macro-lepidoptera. The group has been but very imperfectly worked, and although the list is probably a nearly accurate one of what is known, the next few years will doubtless add considerably to it.

An analysis of the entire list shews that we have 1343 known Yorkshire species out of 2031 British species, made up as follows :—

	Yorkshire.		British.
Diurni	48	out of	64
Nocturni	80	,,	112
Geometræ	207	,,	278
Drepanulæ	3	,,	6
Pseudo-Bombyces	19	,,	27
Noctuæ	225	,,	309
Deltoides	8	,,	14
Aventiæ	1	,,	1
Pyralides	46	,,	75
Crambites	39	,,	80
Tortrices...	201	,,	334
Tineina	447	,,	700
Pterophorina	18	,,	31
Alucitina	1	,,	1
	1343		2031

The abbreviations used by Mr. Stainton, in his "Manual," thus :—

! signifying common,
!! signifying abundant,

as being those to which we are most accustomed, are adopted. But it must not be supposed for localities where these signs do not appear, that the species in them is necessarily not "common" or "abundant," for in many, indeed in most, lists sent in, there was no indication whatever given as to the relative scarcity or abundance of species.

I purposely avoid saying anything about the geology or botany of our county, as, although they have of course interesting relationship to, and close connection with, the lepidopterous fauna, they have already been fully dealt with by other members of our Union, in other portions of our "Transactions," or in separate works which treat of the respective branches of science.

LEPIDOPTERA.

DIURNI.

Papilio Machaon *L.* There is satisfactory evidence that this fine species formerly occurred with us, although it has long been extinct. At page 27 of Haworth's "Lepidoptera Britannica" (1803) we read "I know *Machaon*, the common swallow-tailed *Papilio*, breeds near Beverley yet, and my brother-in-law, R. Scales, of Walworth, near London, possesses a specimen of it which was taken there seven years since."

Leucophasia sinapis *L.* Rare. Once near Doncaster in 1837 (*Morris' Brit. Butt., p.* 29); Huddersfield, one (*P.I.*); Sheffield (*A.D.*)

Pieris brassicæ *L.* Abundant everywhere.

Pieris rapæ *L.* Abundant everywhere.

Pieris napi *L.* Abundant everywhere.

Anthocharis cardamines *L.* Generally common throughout the county, but less so in some parts of the West Riding.

Gonepteryx rhamni *L.* Of general occurrence (except in the coal districts of the West Riding, where it is rare), but scarcely so common as the last.

The variety **Cleopatra** occurred at Thrybergh Park, near Rotherham, June 27th, 1860 (*Rev. H. A. Pickard, Ent. W. Int.*, viii. 171-2, *Sep.* 1860).

Colias Edusa *Fab.* This species is of very irregular appearance, but has occurred in all parts of the county. In 1877 it was especially plentiful, and probably there was scarcely a district unvisited by it. Some of the localities given are as follows:—Arthington, several in 1877 (*C.S.*); Askern (*W. Nelson*); Barnsley (*J.H.*); Batley (*Oscar Wildsmith*);

Bingley (*E.P.P.B.*); Bolton Abbey (*G. Roberts*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Bridlington (*M.L.*); Flamborough Head, about a score on June 27th 1877 (*W. B. Turner*); Goole (*H. F. Parsons*); Huddersfield, one in my own collection, taken at Shepley in 1870 (*G.T.P.*); a few previously and several in 1877 (*Hobkirk's History of Huddersfield*, *G.T.P.* and *S.L.M.*); Hull (*J. Young*); Ilkley (*B.H.*); Lartington (*J. Gardner*); Leeds (*J.G.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Selby (*T.F.*); Sheffield (*A.D.*); Spurn Head, occasionally (*W.E.C.*); Wakefield, quite common in 1877 (*W.T.*); Wath-upon-Dearne (*H. Payne*); York (*W.P.*)

The variety **Helice** has occurred at Richmond (*J. Sang*); two at Wakefield, in 1877 (*H. Lumb*); and two at York, in 1877 (*Messrs. Hind.*)

Colias Hyale *L.* Very rare, but has occurred at Heslington Field, near York, eight specimens in 1842 (*R.C.*, *Zool.*, 1847, v. 1844), also Sept. 3rd, 1842 (*T. H. Allis*, in *Newman's Entom.*, *Dec.*, 1842); Horningsea (*W.W.*); Selby (*R.H.* and *T.F.*); and York (*Mr. Robinson* in *Stainton's Manual*).

Argynnis Paphia *L.* Distributed, but not by any means common.

Bishop's Wood (*J.G.*); Edlington Wood (*J.H.*); Huddersfield, very rare (*P.I.*); Maltby, Sheffield (*A.D.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Wakefield, rare (*W.T.*); York (*R.C.*, *Entom.*, *Feb.*, 1842).

Argynnis Aglaia *L.* Perhaps still rarer than the last.

Flamborough Head (*E.H.*); Maltby, Sheffield (*A.D.*); Pontefract (*B.H.*); Scarborough (*J.H.R.*); Selby (*R.H.* and *T.F.*); Wakefield, rare (*W.T.*); Whitby! (*W.E.C.*); York (*W.P.*, *Entom.*, x. 130).

Argynnis Adippe *Fab.* Bishop's Wood (*W.E.C.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Pontefract (*B.H.*); York (*R.C.* and *Stainton's Manual*).

Argynnis Lathonia *L.* Two specimens of this very rare species are recorded. One on Oliver's Mount, Scarborough, in September, 1868 (*J.H.R.*); the other near York (*E.B.*, *Newman's "Butterflies," p.* 35).

Argynnis Euphrosyne *L.* Occurs in many places, but is not often common.

Askham Bog (*W.P.*); Bishop's Wood !! (*J.G.*); Bramham ! (*J.S.*); Castle Howard (*W.P.*, *Nat.* v. 176); Doncaster (*J.H.*); Goole (*H. Hall*); Huddersfield, very rare (*J.V.*); Richmond (*J. Sang*); Roche Abbey (*W. H. Smith*, *Ent. W. Int.*, iv. 85); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield, rare (*W.T.*); York (*W.P.*, *Ent. W. Int.*, 1858, *p.* 123).

Argynnis Selene *Fab.* Askham Bog (*W.P.*); Bawtry (*J.H.*); Bishop's Wood (*J.G.*); Bramham Park (*W.H.T.*); Edlington Wood (*F. O. Morris*, *Brit. Butt.*, 1860, *p.* 108); Sandbeck Park (*John Heppenstall*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Pontefract (*B.H.*); Tadcaster; York (*W.P.*, *Ent. W. Int.*, iv. 123).

Melitæa Artemis *Fab.* Askham Bog (*W.P.*); Leeds (*E.B.*); Hunslet, one in Middleton Wood (*J.P.*); Sandbeck Park, Lord Scarborough's (*John Heppenstall*, *Newman's Entom.*, *Aug.*, 1842); Selby, (*R.H.* and *T.F.*); Sheffield (*A.D.*); York (*W.P.*)

Vanessa C-album *L.* Distributed, but only common in a few localities.

Has occurred at Adel Blackmoor, near Leeds (*W.H.T.*); Askham Bog, "in the rough field adjoining the middle bog" (*W.P.*); Bishop's Wood (*J.G.*); regularly at Doncaster (*J. Hawley*); Green Hammerton,

sometimes abundant (*John Harrison, of Wilstrop Hall*); Halifax (*E.B., Newman's "Butterflies," p.* 151); Helmsley, abundant on September 5th, 1872 (*F. Raine, Entom.*, vi. 236); Pocklington (*A. W. Griggen, Ent. W. Int.*, 1858, *p.* 179); Pontefract (*B.H.*); Rotherham, abundant in 1856 (*W. Thomas, Ent. W. Int.*, i. 180, 1856); Scarborough!! (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Whitby! (*W.E.C.*)

Vanessa urticæ *L.* More or less common all over the county.

Mr. John Grassham took the variety No. 3 of Newman's "Butterflies," at Bishop's Wood; and Mr. S. L. Mosley records a peculiarly dark variety at Bradford, in 1877.

Vanessa polychloros *L.* Not uncommon, but not often taken in numbers.

Barnsley (*J.H.*); Bishop's Wood (*J.G.*); Bradford, rare (*J. W.C.*); Doncaster (*J. Hawley*); Halifax (*Newman's "Butterflies"*); Huddersfield (*G.T.P.*); Horbury (*G.T.P.*); Leeds (*J.G.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*)

Vanessa Antiopa *L.* This fine and rare species has at different times been taken in almost every part of the county. In 1872 it occurred in numbers all over England, and in our own county was almost common, being observed or taken at the following places:—

Barnsley, six specimens (*J.H.*); two of these are in my own cabinet (*G.T.P.*); Beverley, in numbers (*F. Boyes*); Bradford (*J. W.C.*); Cleckheaton (*J. Firth*); Driffield (*W. H. Jennings*); Helmsley, two (*F. Raine*); Hornsea (*F. Boyes*); Huddersfield, several (*G.T.P.* and *S.L.M.*); Hull; Keighley (*J. T. Calvert*); Leeds, several (*J.G.*); Malton, seven (*W.P.*); Richmond (*G.P.H.*); Saltburn; Scarborough, two (*J.H.R.*); York,

four (*W.P.*); Wakefield (*W.T.*); and in many other places.

Other records include in 1858, Brough (*T.H.A.*); Huddersfield—and another in March, 1859 (*J.V.*); Ossett (*W. Ullyatt*); Pocklington (*A. W. Griggen*); Redcar (*E. J. Martin*); Whitby, several (*W.E.C.*). At Edlington Wood, Doncaster, in 1875 (*J.H.*); Kirkstall, in 1875 (*C. W. Liversedge*); Filey, in 1876 (*G. D. Armitage*); Bramham, in 1879 (*J.Sm.*); Bradford, two in 1880; York, two in 1880; Barden Tower, in Wharfedale, 1881 (*E.P.P.B.*); Doncaster (*J.G.*); Ripon, two (*R. Blakeborough*); Selby (*C.S.*); Sheffield (*A.D.*); and Tadcaster (*H. Wright*).

Vanessa Io *L.* Not so abundant as in many counties, but occurs in greater or less numbers at Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*J.G.*); Bradford !! (*J.W.C.*); Bramham ! (*J.Sm.*); Bridlington (*M.L.*); Huddersfield (*G.T.P.*); Hunslet (*J.P.*); Knaresborough ! (*W.D.R.*); Leeds (*E.B.*); Market Weighton (*W.P.*); Otley (*W.D.R.*); Ovenden (*John Hirst*); Pannal (*W.D.R.*); Pontefract (*R.H.*); Raskelf (*G.T.*); Richmond (*J. Sang*); Rigton (*G.T.*); Scarborough ! (*J.H.R.*); Saltburn (*J.P.*); Sheffield (*A.D.*); Thirsk (*J.G.*); Wakefield (*W.T.*); Whitby (*W.E.C.*)

Vanessa Atalanta *L.* Generally common throughout the county.

Vanessa cardui *L.* Occurs periodically all over the county, and was very common everywhere in 1879.

Arge Galathea *L.* At one time a well-known Yorkshire butterfly, but now probably extinct.

"Near Beverley formerly, but probably extinct there" (*N.F.D.*). "I have taken *A. Galathea* at Marr, near Doncaster, and on Buttercrambe Moor, near Stamford Bridge" (*F. O. Morris*, "*British Butterflies*," 1860, *p.* 34). "Formerly near Doncaster, but not found there now" (*A. Ecroyd*,

Newman's "British Butterflies"). "Maltby Wood, eighty in one day" (*William Laycock, Ent. W. Intelligencer*, 1858, *p.* 133). Taken at Maltby by Mr. A. Doncaster and others. Mr. W. H. Taylor mentions a specimen taken at Bramham Park many years ago. "Formerly abounded in the woods near Stamford Bridge, but has not been seen for some years" (*E.B., Entom.* v. p. 392). Said to have occurred frequently in a quarry near Tadcaster, York (*R.C., Newman's "British Butterflies," p.* 80, and *Entom.*, 1842). Formerly at Scarborough (*E.B., Newman's "British Butterflies."*)

Erebia Blandina *Fab.* This northern species has long been known to occur in plenty at Grassington, in Upper Wharfedale, and on the occasion of the Yorkshire Naturalists' Union's visit there, on August 7th, 1882, was found to be as abundant as ever on the grassy slopes in the Grass High Wood; I took a beautiful series in splendid condition, as also did everyone else who wanted it (*G.T.P.*) Mr. Henry Denny also reports it from Whernside in Craven (*Mag. of Zoology and Botany*, 1837, i. 491), but there are no recent records of its occurrence there, possibly however because it has not been looked for.

Satyrus Ægeria *L.* Bramham (*J.Sm.*); Edlington Wood (*J.H.*); Huddersfield, formerly (*J.V.*); Ledsham! (*J.W.T.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wentbridge (*J.W.T.* and *G.T.*); York (*R.C., Entom.* 1842).

Satyrus Megæra *L.* Bishop's Wood (*J.G.*); Doncaster (*J.H.*); Flamborough Head! (*W.E.C.*); Goole (*G. Mobbs*); Huddersfield, formerly (*P.I.*); Hunslet, rather scarce (*J.P.*); Leeds, formerly at Gledhow (*W.H.T.*); Pannal (*W.D.R.*); Pontefract (*B.H.*); Scalby Mills (*G.T.*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Whitby! (*W.E.C.*); York (*R.C., Entom.* 1842).

Satyrus Semele *L.* Abundant on the Castle Hill at Scarborough (*G.T.P.*); common at Great Almes Cliff (*J.P.*) Formerly at Nafferton on the heath on the road to Pockthorpe (*F.O.M.*, "*British Butterflies*, 1860, *p.* 42).

Satyrus Janira *L.* Generally distributed; abundant in the East Riding, but less common in the West Riding. At Huddersfield it seems to be extinct, for although I saw it in abundance in a field at Almondbury many years ago, I have never seen a specimen there since.

Satyrus Tithonus *L.* Very common in the lanes, &c., on the east coast, but less plentiful in other districts.

Askham Bog (*W.P.*); Bishop's Wood (*J.G.*); Bramham (*J.Sm.*); Bridlington ! (*M.L.*); Filey (*G.T.P.*); Hunslet ! (*J.P.*); Methley ! (*J.P.*); Raskelf !! (*G.T.*); Redcar (*J. Sang*); Scarborough ! (*J.H.R.*); Sheffield (*A.D.*); Thorner (*J.W.T.*); Wakefield (*W.T.*); Whitby !! (*W.E.C.*)

Satyrus Hyperanthus *L.* Bishop's Wood !! (*J.G.*); Bramham ! (*J.Sm.*); Edlington Wood ! (*G.T.P.*); Huddersfield, formerly (*J.V.*); Ledsham (*J.W.T.*); Maltby Woods, near Sheffield !! (*W. Laycock*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*G.P.H.*); Scarborough ! (*J.H.R.*); Wakefield (*W.T.*)

Chortobius Davus *Fab.* Abundant nearly every year on Thorne Waste, near Goole (*G.T.P.*); Cottingham, near Hull (*J. C. Dale, Zoologist*); Hatfield Fens (*E.B., Newman's* "*British Butterflies*," *p.* 100); not uncommon at Hawes, Wensleydale (*G.P.H.*); and Mr. W. E. Clarke took a specimen about 1870, on Adel Moor, near Leeds, where it had probably been turned down.

Chortobius Pamphilus *L.* Distributed all over the county, but rare in some parts of the West Riding.

Thecla rubi *L.* Askham Bog (*W.P.*); Barden Moors, rare (*E.P.P.B.*); Pickering Valley (*J.H.R.*); Pontefract (*B.H.*); Sheffield (*A.D.*)

Thecla quercus *L.* Askham Bog (*W.P.*); Bishop's Wood (*J.G.*); Bramham! (*J.Sm.*); Doncaster (*W.W.*); Leeds (*E.B.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Whitby!! (*W.E.C.*)

Thecla W-album *Illig.* Abundant in Edlington Wood, Doncaster, and adjoining lanes and field sides (*G.T.P.*); Roche Abbey! (*W. H. Smith*, *Ent. W. Int.*, iv. 85); Sheffield (*A.D.*); York (*Stainton's Manual*).

Polyommatus phlæas *L.* Commonly distributed throughout the county.

The white variety, **Schmidtii**, occasionally occurs; one in my own cabinet was taken at Huddersfield in 1871; another was in Mr. J. Varley's collection; and one is recorded by Mr. W. Clark, from Doncaster.

Lycæna Ægon *Bork.* Rather scarce.

Scarborough (*T.W.*); Selby (*R.H. and T.F.*); Sheffield, in old list (*A.D.*); near York (*W.P.*, *Ent. W. Int.*, 1858, *p.* 123).

Lycæna Agestis *W.V.* Also an uncommon species.

Boston Spa (*Ent. W. Int.*, 1856, *p.* 173); Ledsham (*J.W.T.*); Richmond (*J. Sang*); Scarborough (*G.T.*); York (*R.C.*, *Entom.*, 1842).

Mr. John Sang informs us that the Richmond specimens are of the form **Salmacis** *Steph.*

Lycæna Alexis *Hub.* Generally distributed, but very scarce in some parts of the West Riding.

Lycæna Alsus *Fab.* Boston Spa; Bramham! (*J.Sm.*); Scarborough!! (*T.W.*); Sheffield, in old list (*A.D.*); Sutton-under-Whitstone Cliff (*J.G.*); Wakefield (*W.T.*); ten miles from York (*R.C.*, *Entom.*, 1842).

Zygogonium ericetorum *K.* Baildon and Wibsey. W. West. Bramhope. Abbott, Emsley and Turner.

Mesocarpus scalaris *Hass.* Markington. J. S. Tute. Roundhay. Abbott, Emsley and Turner.

Staurocarpus gracilis *K.* Horsforth. Abbott, Emsley and Turner.

Œdogonium vesicatum *Sk.* Baildon. W. West. Bramhope. Abbott, Emsley and Turner.

Œ. Braunii *K.* Baildon. W. West. Markington. J. S. Tute. Adel. Abbott, Emsley and Turner.

Œ. ciliatum *Pringhs.* Bramhope. Abbott, Emsley and Turner.

Œ. tumidulum *K.* Bramhope and Adel. Abbott, Emsley and Turner.

Bulbochæte setigera *Roth.* Riccall. W. West. Adel. Abbott, Emsley and Turner.

Vaucheria sessilis *DC.* Adel. Abbott, Emsley and Turner.

V. geminata *DC.* Headingley. Abbott, Emsley and Turner.

V. racemosa *Auct.* Meanwood. Abbott, Emsley and Turner.

Oscillatoria tenuis *Ag.* Potternewton.

O. autumnalis *K.* Headingley, Bramhope and Chapel Allerton. Abbott, Emsley and Turner. Shipley. W. West.

O. limosa *Ag.* Shipley. W. West.

O. muscorum *Ag.* Allerton. W. West.

Spirulina oscillarioides *Turp.* Bramhope. Abbott, Emsley and Turner.

Lyngbya concinnata *K.* Potternewton. Abbott, Emsley and Turner.

L. muralis *Ag.* Roundhay. Abbott, Emsley and Turner. Common in shady streets all over Bradford and Leeds. W. West.

Rivularia atra *K.* Roundhay. Abbott, Emsley and Turner.

Leptothrix ochracea *K.* Hunslet. Abbott, Emsley & Turner.

Tolypothrix distorta *Müll.* Baildon. W. West.

Cylindrospermum macrospermum *K.*
Bradford. W. West and J. E. Wilson.

Calothrix mirabilis *Dillw.* Malham Tarn. W. West.

Nostoc sphæricum *Poir.*
Ingleton. Abbott, Emsley and Turner.

N. cœruleum *Lyngb.* Baildon. W. West.

Monostroma bullosum *Thur.*
Roundhay. Abbott, Emsley and Turner.

Schizogonium murale *K.* Bradford. W. West.
Roundhay. Abbott, Emsley and Turner.

Botrydina vulgaris *K.*
Headingley. Abbott, Emsley and Turner.

Pleurococcus vulgaris *Menegh.* The most abundant alga everywhere (if not consisting of the gonidia of Lichens).
W. West.

Coccochloris protuberans *Spreng.*
Adel. Abbott, Emsley and Turner.

Tetraspora gelatinosa *Desv.*
Adel. Abbott, Emsley and Turner.

Apiocystis Brauniana *Naeg.*
Adel. Abbott, Emsley and Turner.

Glæocapsa ampla *K.*
Bramhope. Abbott, Emsley and Turner.

Ophiocytium majus *Naeg.* Aldfield. J. S. Tute.
Bramhope. Abbott, Emsley and Turner.

Sciadium arbuscula *A. Br.*
Harrogate. Abbott, Emsley and Turner.

Hydrocytium acuminatum *A. Br.* Baildon. W. West.

Glæocystis vesiculosa *Naeg.* Rawcliffe. Nuttall and West.

Desmidium Swartzii *K.*
Bramhope. Abbott, Emsley and Turner.

Hyalotheca dissiliens *Breb.* Brimham. J. S. Tute.
Bramhope. Abbott, Emsley and Turner.

Cosmarium botrytis *Bory*. Markington. J. S. Tute.

C. tetrophthalmum *K*.
Bramhope. Abbott, Emsley and Turner.

Staurastrum dejectum *de By*.
Bramhope. Abbott, Emsley and Turner.

Tetmemorus granulatus *Breb*.
Roundhay and Adel. Abbott, Emsley and Turner.

Closterium Ehrenbergii *Menegh*. var. *β*.
Adel. Abbott, Emsley and Turner.

C. setaceum *Ehrb*. Meanwood, Roundhay and Adel.
Abbott, Emsley and Turner.

C. acutum *Breb*. Adel. Abbott, Emsley and Turner.

Pediastrum granulatum *K*.
Adel. Abbott, Emsley and Turner.

P. Boryanum *Turp*. Markington. J. S. Tute.

Scenedesmus acutus *Mey*., var. obliquus.
Malham. W. West. Bramhope. Abbott, Emsley & Turner.

Epithemia turgida *Ktzg*.
Bramhope. Abbott, Emsley and Turner.

Eunotia trioda (triodon *Ehrb*. vel triodon *Perty*).
Roundhay. Abbott, Emsley and Turner.

Diatoma elongatum *Ag*.
Roundhay. Abbott, Emsley and Turner.

Bacillaria elongata *Ehrb*. Markington. J. S. Tute.

Odontidium turgidulum (turgidum *Ktzg*.)
Roundhay. Abbott, Emsley and Turner.

Nitschia Tænia *Sm*. Roundhay. Abbott, Emsley and Turner.

N. minutissima *Sm*. Roundhay. Abbott, Emsley and Turner.

Surirella bifrons *Ehrb*.
Roundhay and South Milford. Abbott, Emsley and Turner.

S. ovata *Kg*.
Roundhay and South Milford. Abbott, Emsley and Turner.

Synedra splendens *Kg.* Markington. J. S. Tute.
Roundhay and South Milford. Abbott, Emsley and Turner.
Baildon. W. West.

S. lanceolata *Kg.* Roundhay. Abbott, Emsley and Turner.

S. ulna *Ehrb.* Markington. J. S. Tute.

Amphipleura pellucida *Kg.*
Roundhay. Abbott, Emsley and Turner.

Cocconeis pediculus *Ehrb.* Markington. J. S. Tute.
Roundhay. Abbott, Emsley and Turner.

C. scutellum *Ehrb.*
South Milford. Abbott, Emsley and Turner.

Achnanthidium microcephalum *Kg.*
Chapel Allerton. Abbott, Emsley and Turner.

A. flexellum *Breb.* Adel. Abbott, Emsley and Turner.

Cocconema lanceolatum *Ehrb.*
Roundhay. Abbott, Emsley and Turner.

C. cymbiforme *Ehrb.*
Roundhay. Abbott, Emsley and Turner.

Gomphonema geminatum *Ag.*
Roundhay. Abbott, Emsley and Turner.

G. olivaceum *Kg.* Markington. J. S. Tute.
Roundhay. Abbott, Emsley and Turner.

Sphenosira catena *Ehrb.*
Roundhay. Abbott, Emsley and Turner.

Navicula rhomboides *Ehrb.*
South Milford. Abbott, Emsley and Turner.

Gyrosigma tenuissimum *Sm.*
South Milford. Abbott, Emsley and Turner.

G. Spencerii *Sm.* South Milford. Abbott, Emsley & Turner.

G. angulatum *Sm.*
South Milford. Abbott, Emsley and Turner.

G. angulatum var. *β.*
South Milford. Abbott, Emsley and Turner.

Pinnularia minor —?
Roundhay. Abbott, Emsley and Turner.
P. major *Rabh.* Baildon. W. West.
Stauroneis phœnicenteron *Ehrb.*
South Milford. Abbott, Emsley and Turner.
Tetracyclus lacustris *Ralfs.*
Roundhay. Abbott, Emsley and Turner.
Hymantidium pectinale *Ehrb.* Baildon. W. West.
Campylodiscus costatus *Sm.* Bingley. W. West.
Markington. J. S. Tute.
Protococcus viridis *K.* Common.
P. pluvialis *K.* Leeds. Abbott, Emsley and Turner.
Bingley. W. West.
Gonium pectorale *Müll.*
Wortley. Abbott, Emsley and Turner.

THE 'NATURALIST.'

There have been some very good botanical contributions to the organ of the Union during the past year, including bryological papers by Messrs. H. Boswell, J. Whitehead, C. P. Hobkirk and the Rev. J. Fergusson; "The autumn Flora of Whernside," by Messrs. Lees and West; "Lincolnshire Maritime Plants," by the Rev. W. Fowler, M.A.; "List of Mosses occurring near Wetherby," by J. S. Wesley, M.B.; and "The Fresh-Water Algæ of the Leeds district," by W. Barwell Turner, F.C.S.

PLANT DISTRIBUTION IN RELATION TO ALTITUDE AND THE NATURE OF THE SOIL.

The excellent paper upon this subject by Dr. Parsons, in last year's 'Transactions,' has proved very useful by calling the attention of our junior botanists to this important subject, for already some of the members have written on their herbarium labels the nature of the soil the plants were collected on, according to Dr. Parsons' diagnosis of each kind of soil; it is to be hoped that these botanists will also write down on their labels the altitude at which the plants occurred.

CORRECTIONS.

The following rectifications of localities and nomenclature have come to hand since the earlier portion of the Botanical Report for 1879 was printed off, and as accuracy is desirable we give them here.—W. WEST.

p. 73—*Ranunculus lingua*—Potteric Carrs (*not* Conisbro').

Fumaria Boræi—Near Conisbro', T. Birks (*not* Cantley).

Sagina ciliata—Gravel pit, Armthorpe Road, Doncaster (*not S. apetala*).

p. 75—*Hieracium vulgatum*—Hebden Bridge Valley (*not gothicum*).

Pyrola minor—Sandal Beat wood (*not* Seat Sandal).

p. 77—*Chara opaca* Braun.—York (*not C. syncarpa*).

p. 78—*Rhabdoweissia fugax*—Howgill (*not R. denticulata*).

p. 80—*Amblystegium fluviatile*—Wet rocks, Dacre Banks near Pateley, W. F. (*not A. irriguum*).

p. 81—*Pellia calycina* Nees—Howgill Fells (*not Blyttia Lyellii*).

p. 85—*Malva moschata*—Grimston, G. Webster (*not* H. F. P.).

Bromus serotinus—Rokeby, A. Ley (*not B. Benekenii*). *Vide* Bot. Exch. Club Rep., 1879, p. 22.

Chara opaca Br.—Rawcliffe Common (*not C. syncarpa*).

p. 86—*Salix nigricans* var. *Andersoniana*—Cowside Beck Dale, Arncliffe, W. W. (*not phylicifolia*).

p. 87—*Weissia crispula*—Harrogate, T. Hick. This was a memorandum record, no specimen seen, and the locality is unlikely for such an arctic species. Verification unobtainable.

p. 88—For J. S. Wesley read F. A. Lees (*Vide* Nat., vol. v., p. 43, Oct., 1879, for Dr. Wesley's repudiation).

p. 88—Under *B. origanum* Bosw., for 'Lowton and Teesdale' *read* 'Lonton in Teesdale.'

YORKSHIRE NATURALISTS' UNION.

BOTANICAL SECTION.

The Third Annual Meeting was held at Huddersfield on Jan. 17th, 1880, when the preceding report was handed in to the Section.

The officers elected for 1880 were:—

President: C. P. Hobkirk, F.L.S., Huddersfield.
Secretary for Phanerogamic Botany:
F. Arnold Lees, F.L.S., Wetherby.
Secretary for Cryptogamic Botany:
William West, Bradford.

The Section is much indebted to the following gentlemen for assistance in the determination of critical species:—Messrs. H. Boswell, F. Arnold Lees, the Revs. J. Fergusson and J. Stevenson, and other botanists.

The Fourth Annual Meeting was held in the city of York on the 15th of January, 1881, when the officers for 1880 were re-elected for 1881, with a Committee consisting of the following members:—

Thomas Birks, jun., Goole.
W. Norwood Cheesman, Selby.
Rev. William Fowler, M.A., Liversedge.
Thomas Hick, B.A., B.Sc., Harrogate.
George E. Massee, Scarborough.
H. T. Soppitt, Saltaire.
George Webster, York.

The Phanerogamic Report for the preceding year, written by Dr. Lees, follows on the next page.

The Cryptogamic Report, written by Mr. West, was published in the 'Naturalist,' for April, June, July, August and September, 1881, vol. vi., p. 133—7, 166—8, 181—3; vii., 11—15 and 30—33

REPORT ON YORKSHIRE BOTANY FOR 1880,

PREPARED FOR THE
BOTANICAL SECTION OF THE YORKSHIRE NATURALISTS' UNION,

BY F. ARNOLD LEES,
M.R.C.S.ENG., L.R.C.P.LOND., F.L.S., ETC.; OF WARRINGTON.

The observations made—the readiest rough test of the work done—during the season of 1880, at the six meetings (Hackfall, Malton, Barnsley, Boston-Spa, Marsden and Market Weighton) are not so imposing numerically as those of 1879. The total records in all classes of plants have numbered 1377, relating to 733 different species: as against 2054, involving 970 distinct kinds of plants, in 1879. In part this is accounted for by the wet and generally unpropitious season of 1880, but not a little is also due to a somewhat stricter practice as regards the inclusion, or rather exclusion, of observations made by *non*-Unionists amongst the botanists of the county, at other than Union excursions, by which the numerical summary ceases to be swelled with records to which the Union can strictly lay no claim.

So far as Phanerogams and Vascular Cryptogams are concerned, 949 observations have been registered, in which total some 544 species are concerned: the figures respectively for the previous year being 1396—623. And yet in the interest and importance of individual records the year compares more than favourably with 1879.

Foremost in the call for mention is the new form of Sedge—a variety new to the European as well as the British flora—with the further distinction of having come from a West Yorkshire station. This species—*Carex saxumbra* Lees—was first gathered by myself, growing on overhanging sandy ledges and out of clefts of tree-shaded red-gritstone rocks by the 'lake' at Plumpton near Knaresborough. The affinities of this latest addition to our flora are with *Carex pilulifera* (of which it is at the least a very marked

variety) and a continental plant named *C. polyrhiza* Wallr., resembling the latter in the many stems thrown up in large tufts from a creeping fibrous root. In a lineal arrangement of British species its position will be between *C. præcox* and *C. pilulifera.* It is a graceful, long narrow bright green-leaved plant, much larger in size than the pill-headed sedge: about the stature of *C. divisa* or *C. pallescens*, and in general appearance is not unlike the first named. It has a spike, which from its interrupted, irregular character (not patently composed of separate and distinct catkins) simulates rather the androgynous section of the genus *Carex*, than those with a terminal, wholly staminiferous catkin, although belonging to them nevertheless. When I first sent it to Mr. H. C. Watson, that gentleman thought it might prove to be *C. polyrhiza* Wallr. (*umbrosa*, Hoppe.; *longifolia*, Host.); but further inquiry showed that though *C. polyrhiza* approximates towards *C. pilulifera* and recedes from *C. præcox*, by reason of densely tufted fibrous roots, it has not the prolonged leaf-like bract to the elongated lowest spikelet, which forms the most marked feature of the Plumpton Carex. As regards this last character, however, Mr. Watson points out that in 'English Botany,' Syme's 3rd ed., vol. x., plate mdcliii., a second figure of a fruiting spike of *C. pilulifera* is given to shew a bract, which although not leafy, yet a little overtops the male catkin; and adds that in his herbarium is a specimen with a still longer bract than the one drawn in the 'E. B.' plate, thus furnishing another link to connect the Plumpton sedge with *C. pilulifera.* As regards their bracts I may add that Prof. Babington's definition of *C. pilulifera* in his 'Manual of British Botany' (ed. v. p. 375) is "bracts small, lowest scarcely leaf-like, awl-shaped, not sheathing"—characters in no way fitting *C. saxumbra.* Dr. J. T. Boswell, however, struck by the very different glume and much more spindleshaped fruit, thinks it may be a distinct species, and advises cultivation, to ascertain whether it will retain its characteristics or revert to the *C. pilulifera* of our exposed wastes; but upon the supposition that it is a luxuriant sylvan sport, due to its place of growth at Plumpton being so unlike

its ordinary one, garden treatment is more likely to favour and intensify its present aberration from the parent type. There are other points of difference besides that of the bracts; but these will be defined in their proper place.

The other new records for 1880 are as follow.

The signs * and † have the usual meaning; *i. e.*:—

* = Not indigenous anywhere in Britain, but now becoming acclimatised.

† = Not native in the spot where found (but naturalised) although it may be truly wild in other parts of Britain.

Clematis Vitalba *L.*† Freely naturalised on the southern bank of the line, a quarter of a mile west of Thorparch railway station. J. Emmet! M.W. York.

Ranunculus Lingua *L.* Sharow mires near Ripon, plentiful and luxuriant. H. H. Slater. M.W. York.

R. sceleratus *L.* Banks of a muddy stream flowing from Stockeld Park towards Ingbarrow farm between Spofforth and Wetherby. F. A. Lees. M.W. York.

R. Lenormandi *Schultz.* About rills and springs at Woolley Edge, near Wakefield. W. West. S.W. York.

Aconitum Lycoctonum *L.** A naturalised alien in the wooded swamp to the back of the ruined house at Bramham Park. F. A. Lees. M.W. York.

[*Fumaria densiflora* DC. This, recorded by Rev. H. H. Slater in his "Preliminary List" for a Ripon Flora, as having occurred casually on waste ground, turns out to be a ramose procumbent form of **F. officinalis**. I have examined the specimen.—F. A. L.]

Sinapis nigra *L.* On the steep bank of the Wharfe at Linton bridge. F. A. Lees. M.W. York.

Brassica Cheiranthus *Vill.*† A few perennial plants with well established roots, occurred on a grassy embankment by the bridge over the railway a short distance west of Wetherby workhouse, in company with *Lotus tenuis* Kit. An alien, and a somewhat surprising one, since the species is a plant of maritime sands. It must have been introduced, perhaps with ballast (or Sarnian grass seed?); but precisely how, I have no evidence. F. A. Lees. M.W. York.

Hesperis matronalis *L.*† Casual. On the sandy islet in the Wharfe just below Boston Spa bridge. J. Emmet!
M.W. York.

Drosera obovata *Bab.*
Leckby Carr, near Topcliffe. W. Whitwell. N.W. York.

Silene puberula *Jord.* This scabrid-leaved variety of the Common Catchfly is almost as common as the type on the limestone about Wetherby. J. Jackson. M.W. York.

Stellaria aquatica *Scop.* Damp hedge-bank in lane leading from Ox-close House to Cowthorpe. F. A. L. M.W. York.

There is so great a resemblance in facies between this species and *S. nemorum*, that all the Yorkshire records are not to be trusted. The lowest leaves in both are stalked, the stem of both is more or less pubescent-glandulous above, the petals in both are cleft and longer than the sepals, and the capsule in seed exceeds the calyx. Perhaps the readiest method of distinguishing the two in the field is the comparative difference in the length and stoutness of the flower peduncles. In *S. aquatica* they are stout, viscous with glands, straight for ¾ths of their length and then rather abruptly curved just under the capsule: in *S. nemorum* they are slender, almost capillary and either straight or gently curving from their slenderness through their whole length. In flower *S. aquatica* has five styles: *S. nemorum* only three: in fruit the capsule of the Water Stitchwort opens by five valves and the diffuse much-branched dichotomous cyme is very brittle, easily disarticulating at the nodes.

The horizontal distribution of the two species looked at from the point of river-basin distribution is somewhat similar: *S. aquatica* standing recorded from all five vice-counties, and *S. nemorum* from all except the East Riding (S.E. Yorks.), and yet the area—projected on the flat—occupied by *S. nemorum* is much the larger. Their areas overlap one another, but the vertical range of *S. nemorum* is the wider, not attaining its limit upwards in the cloughs and vales amongst the hills until 1500 or 1600 feet is reached, whereas *S. aquatica* is more a plant of the central plain and lower lands up to 400 feet only. *S. nemorum* on the other hand descends on the banks of the larger rivers as low as 100 feet.

Spergula arvensis var. b. **vulgaris** *Bœnn.* In a turnip field east of Wetherby. F. A. Lees. M.W. York.

This form, in spite of its varietal name implying its commonness, is much scarcer apparently—or perhaps only more thinly scattered—than var. a. *sativa Bœnn;* and may be known at once from that gray-green clammy glandulous plant by the brighter hue of its less viscid foliage, and by its seeds (which form a beautiful object for the microscope) being very imperfectly winged, and covered with curious club-shaped papillæ, pinky white when immature, turning brownish black as the seed becomes quite ripe. Members should keep on the look out for this singular variety during the next summer, as its Yorkshire distribution has yet to be satisfactorily made out. It is said to be more a plant of potato or fodder-fields than of those of the cereals.

Claytonia alsinoides *Sims.*

Alien. In a wood at Marsden. W. West. S.W. York.

Geranium pyrenaicum *L.* Bank by the highroad-side a little out of Coneysthorpe towards Malton. M. B. Slater. N.E. York.

G. columbinum *L.* Sandy lanes above the bridge at Spofforth; bank at Flint Mill near Wetherby; and by the roadside near Kirk Deighton. F. A. Lees and J. Jackson. M.W. York.

Rhamnus Frangula *L.* Wet hedge-bank by ponds at Moss Carrs farm, York road, Wetherby. J. Jackson. M.W. York.

Genista anglica *L.* White Car bog, Bramham, just outside the wall of the park at its south west corner. F. A. Lees. M.W. York.

G. tinctoria *L.* Woodhall banks in plenty in a field between the Hall and the Banks farm. J. Jackson! M.W. York.
Railway bank near Criggleston Station towards the Haigh tunnel. F. A. Lees. S.W. York.

Prunus Padus *L.* Malton; Plumpton Rocks Woods; and Marsden. N.E., M.W., and S.W. York.

Spiræa Filipendula *L.*
Ure side, Ripon. H. H. Slater. M.W. York.

Potentilla argentea *L.* By several exposed rocks in fields about Crosper and Braham Hall farms, near Spofforth. J. Jackson! M.W. York.

P. procumbens *Sibth.* Near Marsden. W. West. S.W. York.

Rubus Lindleianus *Lees.* Etchell Crags, Scarcroft. F. A. Lees. M.W. York.

R. macrophyllus *Weihe.* Woodhall and Stockeld Park Woods. F. A. Lees. M.W. York.

Cratægus oxyacanthoides *Thuil.*† One bush (with converging veins of leaves, and 2—3 styles to ovary) at end of Crambeck bridge. F. A. Lees. N.E. York.

Hippuris vulgaris *L.* Dyke nr. Market Weighton. S.E. York.
Pool between Bardsey and Etchell Crags! M.W. York.

Callitriche obtusangula *Le Gall.* In a pond close to the cliff at Grimston. George Webster! S.E. York.

Sedum Telephium var. b. **Fabaria** *E. B.* Ledges of the limestone amphitheatre at Douk Ghyll near Horton-in-Ribblesdale. J. R. Murdoch and F. A. Lees. M.W. York.

Pimpinella magna *L.* Locally plentiful at Spofforth Hill and Woodhill lane, Wetherby. J. Jackson. M.W. York.

Œnanthe Lachenalii *Gmel.* One plant by the Ure at Ripon, opposite and a little above the canal mouth. H. H. Slater. M.W. York.

This is a new vice-county record, additional to 'Topographical Botany,' not having been previously recorded on unimpeachable authority in Mid-West Yorkshire. *Œ. peucedanifolia* is, however, an old synonym for this, and under that name Baines' 'Flora of Yorkshire' gives "in ditches near Ripon."

Linnæa borealis *Gronov.* Under heather on Silpho Moor, near Scarborough. P. Tissiman! N.E. York.

An addition to the county flora of a most significant character, if future observation should confirm its indigenity. It was found under the shade of tall heather (ling), not flowering. Is *Calluna* ever sown? If not, is it not just possible that it may have existed for many years as *a relic* (gradually dying out) of a past flora, much more boreal in its general character than that at present covering the Cleveland moors. We have a similar instance in *Cornus suecica* (still existent but rarely flowering at the 'Hole of Horcum') of a characteristically highland type of plant skipping from the Cheviots to Yorkshire. Other examples are *Carex capillaris* and *C. pauciflorus*.

Galium uliginosum *L.* Marshy, boggy field below Ingbarrow farm, between Wetherby and Spofforth. J. Jackson. M.W. York.

Carduus eriophorus *L.* Laneside between Rigton village and Etchell Crags. F. A. Lees. M.W. York.

Arctium intermedium *Lange.* Spofforth hill, and borders of fields near the lodge-gate of Stockeld Park. F. A. Lees. M.W. York.

Gnaphalium dioicum *L.* Cross-roads, Stubbing-Moor, east of Spring Wood, Rigton; and also in Jackdaw Crag Quarry, near Stutton, on dry knolls. J. Emmet and F. A. Lees! M.W. York.

Doronicum pardalianches *L.*† Hedge of field opposite Hospital, Harrogate; and in a small thicket by road close by Stockeld Avenue Lodge. T. J. Foggitt and J. S. Wesley! M.W. York.

Cichorium Intybus *L.* Abundantly in the rocky limestone banks of railway cutting at Ingbarrow, about one-and-a-half miles west of Wetherby. J. Jackson! M.W. York.

Helminthia echioides *Gaert.* Clayey ditch-bank of lane behind Woodhill, east of Wetherby. F. A. Lees. M.W. York.

Lactuca virosa *L.* On the rocky bank of road above the bridge at Thorparch, known for many years to me. J. Emmet! M.W. York.

Vaccinium Myrtillus *L.* Not common on the Permian limestone tract. Bushy rocky ledges at east end of Langwith 'scrub,' near the spa well, Collingham; and in lane between the fir-woods at Brandon near Scarcroft. Hugh Hall and F. A. Lees. M.W. York.

Menyanthes trifoliata *L.* Aketon bleach-works marsh; and Ingbarrow bog-field, west of Wetherby. J. Jackson. M.W. York.

Hyoscyamus niger *L.* Two plants on rocky bank by road towards Boston from Collingham lane end! M.W. York.

Veronica montana *L.* Hackfall near Kirby Malzeard; larch plantation above Bardsey pool; and spinney at Ingmanthorpe. J. Jackson and F. A. Lees. M.W. York.

Verbena officinalis *L.* Waste ground by foot-road, a little west of Wetherby Union-house. F. A. Lees. M.W. York.

Salvia Verbenaca *L.* With the last. J. Jackson. M.W. York.

Calamintha Acinos *Clairv.* St. Helen's Quarry, North Deighton. F. A. Lees. M.W. York.

C. menthifolia *Host.* Laneside just out of Linton towards Wetherby; and half a mile from Wetherby on the Collingham road. J. Jackson and F. A. Lees. M.W. York.

Stachys ambigua *Sm.*
Near Barnsley. H. Johnson! S.W. York.
Road-hedge N. of Kirk Deighton. F. A. Lees. M.W. York.

Symphytum officinale *L.* In plenty by side of brook running into Crimple from St. Helen's Quarry, N. Deighton. J. S. Wesley! M.W. York.

Utricularia neglecta *Lehm.?* This, to all appearance (in absence of flowers), was found by J. Abbott in pond at Askham Bog near the railway bridge! M.W. York.

Hottonia palustris *L.* Pools, in fields on the left of Walton road, past Woodhill, Wetherby; and also in great plenty in marshy field by Nidd on right of road a mile past Ribston towards Knaresborough. J. Jackson and F. A. Lees. M.W. York.

Humulus Lupulus *L.* Lane hedge where the Ings footpath from Wetherby to Linton joins the road: the *female* hop-bearing plant, which is very much rarer in Yorkshire than the male. J. Jackson! M.W. York.

Typha angustifolia *L.* Dyke on north side of the Harrogate branch line of railway, about a mile-and-a-half west of Church Fenton, with **Samolus Valerandi** and **Potamogeton plantagineus.** F. A. Lees. M.W. York.

Lemna gibba *L.* Market Weighton. W. N. Cheesman. S. E. York.

Potamogeton plantagineus *Ducr.* Ditches in boggy field behind Aketon bleach works, Spofforth. F. A. Lees. M.W. York.

P. pusillus *L.* Pond in ings by Wharfe, one mile below Wetherby bridge. F. A. Lees. M.W. York.

Epipactis palustris *Cr.* Marshy field, Ingbarrow, west of Wetherby. J. S. Wesley. M.W. York.

Wet fields by brook near the mill at east end of Boston Spa. J. Emmet. M.W. York.

Bot. Trans. Y. N. U
Vol. I., Pl. I.
(to face p 123.)

[Reprinted from Trimen's Journal of Botany April, 1881.]

J.N. Fitch del.

West, Newman & Co imp.

Carex pilulifera var saxumbra, Lees.

(Leesii, Ridley.)

64.

THE

TRANSACTIONS

OF THE

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[**Lycæna Acis** *W.V.* This rare species, although it has never yet been found in Yorkshire, has occurred so near the county boundary that it deserves mention here. It used to be taken at Epworth, near Bawtry—in Lincolnshire—and if looked for would perhaps be found there still. "Several near Epworth, Bawtry" (*Samuel Hudson, Ent. W. Int.*, 1860, viii. 139). "In meadows (grass) at Epworth, between the 10th and 25th July, just before the grass is ready for the mower" (*Samuel Hudson, Zool.*, 1864).]

Lycæna Argiolus *L.* Usually not uncommon where the holly grows freely.

Huddersfield (*J.V.*); Ledsham (*J.G.*); Leeds, (*E.B.*); Richmond (*J. Sang*); Ripon (*G.T.*); Rotherham (*J.H.*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Nemeobius Lucina *L.* Local, but generally plentiful where it occurs.

Bramham ! (*J.Sm.*); Doncaster (*Alfred Ackroyd*); Maltby (*J.H.*); Pickering !! (*J.H.R.*); Roche Abbey !! (*W. H. Smith*); Sandbeck Park, Tickhill (*F.O.M.*); Scarborough (*E.B.*); Sheffield (*A.D.*).

Syricthus Alveolus *Hüb.* Bramham Park (*F. Oates*); Ledstone (*C.S.*); Pontefract (*B.H.*); Roche Abbey (*W. H. Smith*); Selby (*R.H.* and *T.F.*); Sheffield (*A.D.*); Wakefield (*W.T.*); near York (*W.P.*).

Thanaos Tages *L.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Bramham (*J.Sm.*); Huddersfield, formerly common, but now apparently extinct (*J.V.* and others); Pannal (*J.W.T.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*J. Sang*); Roche Abbey (*W. H. Smith*); Scarborough ! (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hesperia Sylvanus *Fab.* Askham Bog (*W.P.*); Bishop's Wood (*J.G.*); Bramham! (*J.Sm.*); Edlington Wood (*J.H.*); Ledstone (*C.S.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough! (*J.H.R.*); Sheffield (*A.D.*); Thorne Waste (*J.H.*); Wakefield (*W.T.*).

Hesperia comma *L.* Not common.

Bishop's Wood (*J.G.*); "Scarborough and York" (*E.B., Newman's "British Butterflies," p.* 173).

Hesperia linea *Fab.* Fairly common.

Askham Bog (*W.P.*); Bishop's Wood (*J.G.*); Bramham (*J.Sm.*); Filey (*G.T.*); Raskelf! (*G.T.*); Scarborough! (*J.H.R.*); Sheffield (*A.D.*); Thorner (*J.G.*); Wakefield, where a bone-coloured variety has also occasionally been taken (*W.T.*).

NOCTURNI.

Smerinthus ocellatus *L.* Askern (*S.D.B.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Bramham! (*J.Sm.*); Horsforth (*J.P.*); Huddersfield, rare (*G.T.P.*); Pannal (*W.D.R.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Smerinthus populi *L.* Common all over the county.

Smerinthus tiliæ *L.* "Once near York" (*W. C. Hewitson, "Stephens' Illustrations"*).

Acherontia Atropos *L.* Occurs now and then in all parts of the county, and in the potato growing districts of the east and south east is sometimes very plentiful in the larva state.

Barnsley (*J.H.*); Beverley (*C. Williamson*); Boston Spa (*J. Blackburn*); Bradford (*J.W.C.*); Brantingham, abundant in 1865 (*J. C. Kingston*); Bridlington (*M.L.*); Brockholes, in 1882 (*J.V.*); Cawood (*C.S.*); Driffield (*F.O.M.*); Easingwold (*G.T.*); Filey (*J. Bell*); Goole (*G. Mobbs*); Guisborough (*W. Jeffrey*); Hackfall (*J.G.*); Halifax (*D. Baxendale*); Hebden Bridge (*S. Gibson*); Hessle-on-Humber (*G. Burton*); Holderness, sometimes common (*N.F.D.* and *P.W.L.*); Huddersfield, occasionally (*G.T.P.*); Hull, sometimes common, as in 1865 (*A. Wright*); Ilkley (*Vincent Taylor*); Leeds (*E.B.*); Malton (*F.O.M.* and *W. Helstrip*); Marsden (*G.T.P.*); Pateley Bridge (*W. Storey*); Pontefract (*B.H.*); Rastrick (*W. Kaye*); Richmond (*G.P.H.* and *G.T.P.*); Rotherham (*W. Rodgers*); Scarborough, common (*J.H.R.*); Selby, sometimes common, as in 1878 (*T.F.*); Sheffield (*A.D.*); Tadcaster (*Walter Raine*); Thirsk (*G.T.*); Wakefield (*W.T.*); Wetherby (*W.D.R.*); Yeadon (*W.D.R.*); York (*C. D. Wolstenholme*).

Sphinx convolvuli *L.* About equally distributed, but apparently a rather commoner species than the last.

Barnsley (*J.H.*); Bedale (*W. Culverwell*); Bradford (*J.W.C.*); Brantingham, near Brough, in 1860 (*Ent. Ann.*, 1861, *p.* 93); Bridlington, frequently taken off the sails of shipping out at sea, also three in the town (*M.L.*); Doncaster (*J. Heppenstall* and *W. Clark*); Driffield (*F.O.M.*); Halifax, in 1881 (*J. Ogden*); Harrogate, in 1875 (*A. Denny*); Hessle-upon-Humber (*G. Burton*); Huddersfield, several (*G.T.P.*); Hull (*N.F.D.*); Leeds (*E.B.*); Leyburn (*J. Sang*); Masham (*J. Carter, Entom.*, 1868); Pontefract (*B.H.*); Redcar (*T. S. Rudd, Zool.*, 1846); Richmond (*G.P.H.*); Rothwell, in 1877 (*C.S.*); Scarborough (*T.W.*); Selby, abundant (*R.H.* and *T.F.*); Sheffield (*A.D.*); Spurn, sometimes very plentiful (*P.W.L.*);

Wakefield (*W.T.* and others); Yarm, 1860 (*Ent. Ann.*, 1861); York, in 1877 (*W.P.*).

Sphinx ligustri *L.* A rare species in Yorkshire, but is reported from Bridlington (*M.L.*); formerly near Castleford (*C.S.*); Hull (*J. Young*, *Ent. W. Int.*); Scarborough (*Stainton's Manual*); Selby (*R.H.* and *T.F.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York, two larvæ in 1877 (*J. Ripley*).

Deilephila euphorbiæ *L.* Stainton's Manual gives Scarborough as a locality for this species, but the record needs confirmation.

Deilephila galii *W.V.* A great rarity, but has occurred as follows:—

Bishop's Wood (*J.G.*); Bradford, two, one in 1878 (*J.W.C.*); Huddersfield, several (*John Armitage* and *P.I.*); Hull, in 1859 (*J. Young*, *Ent. W. Int.*, p. 5); Scarborough, three (*T.W.*); Sheffield (*A.D.*); Spurn, a larva in 1877 (*P.W.L.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Deilephila lineata *Fab.* As great a rarity as the last.

Barnsley (*Stainton's Manual*); Birstall, one by Mr. Isaac Binns, on July 23rd, 1867 or 1868 (*G.T.P.*); Hebden Bridge in 1865 (*S. Gibson*, *Ent. Ann.*, 1866, *p.* 151); Huddersfield, a very fine specimen on July 9th, 1859 (*E. Carter*, *Ent. W. Int.*, 1859, *p.* 42); Middleton, Sept. 26th, 1868, by Mr. Thorp (*Science Gossip*).

Chærocampa celerio *L.* Another great rarity.

Brantingham Thorp, George Norman (*Zool.* 1847); also at Brantingham in 1865 (*J. H. C. Kingston*, *Science Gossip*, 1865); Doncaster (*Stainton's Manual*); Huddersfield, several, one in a street in the town, in 1868 (*G.T.P.*); Middlesborough (*W. Jagger*, *Ent. Mo. Mag.*, *Jan.*, 1870); Wakefield, "one in 1849, one of my first captures" (*J.*

Sang); one on Sep. 27th, 1860 (*Ent. W. Int.*, ix. 3); also recorded by Mr. W. Talbot; a specimen taken at Handsworth, near Sheffield, by Mr. W. Frost, in October, 1865 (*Entom.*, 1866, *p.* 71); York, one by Mr. Dosser in a cottage at Heworth Moor, October 2nd, 1868 (*W.P.*, *Ent. Mo. Mag.*); also one on September 28th, 1862.

Chærocampa porcellus *L.* Perhaps not uncommon in the eastern division of the county, but apparently very rare elsewhere.

Huddersfield, one (*J.V.*); near Hull (*J. Young*, *Ent. W. Int.*, 1859, *p.* 5); Scarborough (*T.W.*); Spurn, abundant (*P.W.L.*); near York (*W.P.*, *Ent. W. Int.*, 1858, *p.* 123).

Chærocampa elpenor *L.* More distributed than the last.

Askham Bog, comes to sugar (*W.P.*); Beverley (*Davison*); Bishop's Wood (*C.S.*); Rossington (*W.W.*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*T. Wilson*).

Chærocampa nerii *L.* Of this, one of the very rarest of British lepidoptera, a poor specimen was caught in the bar-room of a public-house in Sheffield, September 14th, 1867 (*A.D.*). Probably this is the same specimen as the one recorded by Mr. W. Hydes (*Ent. Ann.*, 1868, *p.* 112).

Macroglossa stellatarum *L.* Distributed and not uncommon, but uncertain in appearance.

Barnsley (*J.H.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Brantingham !! in 1865 (*J. H. C. Kingston*); Bridlington (*M.L.*); Flamborough Head (*E.H.*); Huddersfield (*G.T.P.*); Hull !! in 1865 (*G. Norman*); Hunslet! (*J.P.*); Leeds (*E.B.*); Pannal, in 1868 (*W.D.R.*); Pontefract (*B.H.*); Redcar (*J.P.*); Richmond (*G.P.H.*); Saltburn (*J.P.*); Scarborough !! (*G.T.P.*); Selby (*T.F.* and *R.H.*); Sheffield (*A.D.*); Spofforth, in 1865 (*T. Aked*); Wakefield (*W.T.*); Weeton (*J.P.*); York (*W.P.*).

In the hot summer of 1865 this species occurred in many parts of the country (*G.T.P.*).

Macroglossa fuciformis *L.* Selby (*R.H.* and *T.F.*).

Macroglossa bombyliformis *Esp.* Huddersfield, formerly (*J.V.*); Sheffield (*A.D.*); York (*W.P.*).

Sesia myopæformis *Bork.* Sheffield (*A.D.*).

Sesia culiciformis *L.* Doncaster (*J. Wragg, Ent. W. Int., June* 9, 1860); Sheffield (*A.D.*); York, in 1880 (*W.P.*).

Sesia formicæformis *Esp.* Several among osiers at York, in 1860 (*J. T. Carrington, Ent. W. Int.*, 1860, *p.* 115).

Sesia ichneumoniformis *W.V.* Only on the east coast. Flamborough Head (*E.H.*); Scarborough, "in Cornelian Bay" (*T.W.*).

Sesia cynipiformis *Och.* Bishop's Wood (*C.S.*); Doncaster, scarce (*W.W.*).

Sesia tipuliformis *L.* Common among currant bushes in gardens.

Barnsley (*J.H.*); Bradford (*J.W.C.*); Goole (*G. Mobbs*); Halifax (*G.T.P.*); Huddersfield !! (*G.T.P.*); Hunslet !! (*J.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Pickering (*J.H.R.*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Thirsk (*G.T.*); Wakefield (*W.T.*); York (*R.C.*).

Sesia sphegiformis *W.V.* "A specimen taken at York was in Mr. R. Cook's collection, but he said the locality (Langwith) was now destroyed." "Has occurred at York" (*Stainton's Manual*).

Sesia bembeciformis *Hüb.* Widely distributed and generally common.

Adel, near Leeds (*W.H.T.*); Bradford (*J.W.C.*); Bramley Fall Wood, Leeds (*C.S.*); Halifax (*G.T.P.*); Harrogate (*J. Sang*); Huddersfield !! in *poplars* (*G.T.P.*);

Pontefract (*B.H.*); Richmond (*G.P.H.*); Rotherham !! (*W. Thomas*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*T. Wilson*).

Sesia apiformis *L.* Not common.

Scarborough (*T.W.*). The Rev. F. O. Morris also gives Rawmarsh, near Rotherham, and Sheffield as localities.

Zeuzera æsculi *L.* This species, very common in the south, is seldom seen with us.

Barnsley (*J.H.*); Huddersfield, I have only seen one specimen, taken by Mr. J. Varley in 1876; very curiously Mr. S. L. Mosley two days before the capture found an empty pupa-case, evidently of this species, in the same neighbourhood (*G.T.P.*); Rawmarsh, near Rotherham (*F.O.M.*, *Neville Wood's Nat.*, *June* 1837); Selby (*T.F.* and *R.H.*); Sheffield (*A.D.*); Wakefield, one (*W.T.*); York, in 1880 (*W.P.*).

Cossus ligniperda *Fab.* Not generally common, but of more frequent occurrence than the last.

Askern (*S.D.B.*); Askham Bog, "a row of balsam poplars on the gutter side which separated the two rough fields between Chandler's Whin and the Bog, have all been destroyed by the larvæ of this species" (*W.P.*); Barnsley, in 1880 (*Nat.* vi. 44); Hull (*J.W.T.*); Leeds (*E.B.*); Market Weighton (*W.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Selby (*K.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hepialus hectus *L.* Abundant in all the wooded parts of the county.

Hepialus lupulinus *L.* Very abundant all over the county.

Hepialus sylvinus *L.* Generally distributed and plentiful.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford (*J.W.C.*); Bramham, rare (*J.Sm.*); Harrogate (*J. Sang*);

Horsforth ! (*J.P.*); Huddersfield !! (*G.T.P.*); Hunslet ! (*J.P.*); Leeds (*E.B.*); Pateley Bridge (*W. Storey*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough ! (*J.H.R.*); Sheffield (*A.D.*).

Hepialus velleda *Esp.* Very abundant in the West Riding; and the variety **carnus** *Steph.*, or **Gallicus** *Led.*, often almost as common as the type.

Adel (*W.H.T.*); Barden-in-Wharfedale (*W.D.R.*); Barnsley (*J.H.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Huddersfield !! (*G.T.P.*); Ilkley (*A. Denny*); Leeds (*E.B.*); Pateley Bridge (*W. Storey*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W. C. Hewitson*).

Hepialus humuli *L.* Very abundant everywhere. A form taken by Mr. Thomas Eedle, whilst collecting for Lord Walsingham, at Blubberhouses, near Otley, in 1882, "approached the 'Shetland variety' in the decidedly pinkish tint of the hind wings" (*Lord Walsingham in litt.*, *August 10th*, 1882).

Procris statices *L.* Rare in the West Riding, common in the eastern division.

Barnsley, in 1882 (*W. E. Brady*); Doncaster (*W.W.*); Huddersfield, formerly (*J.V.*); Kilnsey Crag in Wharfedale (*C.S.*); Leeds, once (*W.H.T.*); Martin Beck, Bawtry (*J.H.*); Sheffield (*A.D.*); Snaith (*N.F.D.*); Wakefield (*W.T.*); near York (*W.P.*, *Ent. W. Int.*, 1858, *p.* 123).

Procris geryon *Hüb.* Beverley (*Ent. Ann.*, 1864, *p.* 122); Muker (*G. Brook*, *F.L.S.*, or *S.L.M.*); Richmond (*G.P.H.* and *J. Sang*); Sheffield (*A.D.*); Thorne, near Goole (*R. Creighton*, *Nat.*, vii. 55); York (*Ent. Ann.*, 1864, *p.* 122).

Zygæna trifolii *Esp.* Not common, and I think is often confounded with *Z. loniceræ*.

Edlington, near Doncaster (*W. W.*); Sheffield; York (*R. C.* and *T. H. A.*, *Entom.*, *October*, 1842).

Zygæna loniceræ *Esp.* In profusion on the east coast, but local inland.

Askham Bog (*W. P.*); Barnsley (*J. H.*); Boston Spa (*Nat.*, *N. S.*, vi. 16); Filey !! (*G. T. P.*); Flamborough Head (*S. L. M.*); Huddersfield, formerly (*J. V.*); Pontefract (*B. H.*); Royston (*J. W. T.*); Scarborough !! (*T. W.*); Sheffield (*A. D.*); Thorparch (*E. Wilson, jun.*, in *Loudon's Mag. Nat. Hist.*, *Oct.* 1834, *p.* 534); Wakefield (*W. T.*).

Zygæna filipendulæ *L.* Askham Bog (*W. P.*); Barnsley (*J. H.*); Bramham (*J. Sm.*); Edlington Wood (*J. H.*); Filey (*J. W. T.*); Flamborough Head (*S. L. M.*); Goole (*G. T. P.*); Horsforth, now extinct (*C. S.*); Huddersfield (*J. V.*); Ledsham (*C. S.*); Leeds (*E. B.*); now extinct (*W. H. T.*); Pontefract (*B. H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Selby (*K. R.*); Sheffield (*A. D.*); Wakefield (*W. T.*).

Syntomis phegea *L.* The following note on this species occurs in the Entomologist's Monthly Magazine, Jan., 1873, ix. 199:—"Several years ago my late friend T. H. Allis sent me a specimen of this insect for examination, which he found in the possession of a collector in the north of England, who assured him he captured it in Yorkshire, but I do not recollect the exact locality. It had evidently been on the wing some time before it was captured, and it is not very probable that such a worn specimen would have been sent as a type from the continent.—Henry Doubleday, Epping, Dec. 13th, 1872."

Nola cucullatella *L.* Probably generally distributed.

Askham Bog (*W. P.*); Bramham ! (*J. Sm.*); Brough (*G. T. P.*); Edlington Wood (*G. T. P.*); Huddersfield

(*J.V.*); Leeds (*G.T.*); Sheffield (*A.D.*); Thirsk (*G.T.*); Wakefield (*W.T.*).

Nola confusalis *H.S.*=**cristulalis** *Hüb.* Not common. Edlington, Doncaster (*J.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*T.H.A.*).

Nola strigula *W.V.* Only recorded from one locality. Scarborough (*T.W.*).

Nudaria senex *Hüb.* Occurs at Askham Bog (*W.P.*); and Scarborough (*T.W.*).

Nudaria mundana *L.* Generally distributed and plentiful. Askham Bog (*W.P.*); Askrigg (*W.D.R.*); Barden (*W.D.R.*); Barnsley (*J.H.*); Bingley !! (*E.P.P.B.*); Bradford! (*J.W.C.*); Bramham (*J.Sm.*); Halifax (*G.T.P.*); Huddersfield ! (*G.T.P.*); Leeds (*W.H.T.*); Pannal ! (*W.D.R.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough !! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Calligenia miniata *Forst.* Doncaster! (*W.W.*); Edlington (*J.H.*); Pontefract (*B.H.*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); York ! (*Stainton's Manual*).

Lithosia mesomella *L.* Very local. Thorne, near Goole (*J.H.*); York (*E.B.*, *R.C.*, and *W.P.*).

Lithosia aureola *Hüb.* York (*R.C.*, *Newman's Entom.*, *Feb.*, 1842).

Lithosia helveola *Och.* Only at York. "The specimens are much larger than south of England examples, and the female is bright yellow: it is a well marked variety, possibly a distinct species" (*E.B.*; also recorded by *J.T.C.* and *W.P.*).

Lithosia complanula *Bdv.*=**lurideola** *F.R.* Askham Bog (*W.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*J. Sang*).

Lithosia complana *L.* Bramham (*J.Sm.*); Scarborough (*T.W.*); York (*T.H.A.*, *Entom.*, *Oct.*, 1842, and *R.C.*).

Lithosia griseola *Hüb.* Scarborough, common in Raincliff Wood (*T.W.*).

Lithosia quadra *L.* A scarce species.

Askham Bog, one specimen in 1875 (*W.P.*); Barnsley, two specimens (*J.H.*); one at Redcar in 1875, by Mr. George Brook, F.L.S., of Huddersfield (*G.T.P.*); Scarborough, visits the flowers of hogweed (*Heracleum sphondylium*) on Oliver's Mount, in July (*T.W.*).

Lithosia rubricollis *L.* Guisborough (*F.O.M.*, *B. Moths*, 1871, i. 54); Scarborough ! (*T.W.*); Sheffield (*A.D.*); York ! (*Stainton's Manual* and *R.C.*).

Deiopeia pulchella *L.* Of this beautiful and rare species several specimens are recorded. One on Raincliff Moors, Scarborough, by Mr. Richard Beck, on September 11th, 1871 (*J.H.R.*); one at Scarborough, in June, 1870, by Mr. John H. Benson (*Entom.*, viii. 54); two seen on the wing, October 25th, 1877, in stubble fields on the east coast, by Mr. P. Inchbald, F.L.S. (*P.I.*, *Field*, *Nov. 4th*, 1876, *p.* 556); and a Yorkshire example is mentioned in *Stephens' Illustrations*.

Euchelia jacobeæ *L.* Plentiful on the east coast, &c., but rarely seen in the West Riding.

Doncaster (*W.W.*); Huddersfield, formerly at Kirklees (*S.L.M.* and *P.I.*); Redcar (*J. Sang*); Scarborough ! (*J.H.R.*); Sheffield (*A.D.*); Spurn !! (*W.E.C.*); Wakefield (*W.T.*); York (*T. Wilson*, *Ent. Mo. Mag.*, xvii. 137).

Euthemonia russula *L.* Not common.

Martin Beck, Bawtry (*J.H.*); Riccall common, Selby

(*W. N. Cheesman*); Scarborough, not uncommon (*T. W.*); York ! (*R.C.* and *Stainton's Manual*).

Chelonia plantaginis *L.* Common and generally distributed, on heaths, &c.

Bradford ! (*J. W.C.*); Bramham Park (*F. Oates, Ent. W. Int., July 3rd,* 1858, iv. 108); common on the Greetland and Norland Moors, Halifax (*G.T.P.*); Harrogate (*W.E.C.*); Richmond (*G.P.H.*); Sandbeck Park (*J. Heppenstall, Newman's Entom., Aug.*, 1842, i. 356); Scarborough !! (*T. W.*); Sheffield (*A.D.*); York ! (*Stainton's Manual*); Wakefield (*W.T.*).

Chelonia caja *L.* Abundant all over the county. Many of the best varieties at present in British collections were bred in the West Riding.

Arctia fuliginosa *L.* Commonly distributed over the county.

Barnsley (*J.H.*); Bradford ! (*J. W.C.*); Bramham ! (*J.Sm.*); Halifax ! (*G.T.P.*); Huddersfield ! (*G.T.P.*); Hunslet (*J.P.*); Ilkley (*J. W.T.*); Leeds, Adel Moor ! (*J. W.T.*); Otley Chevin (*J. W.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Ripon (*W. Lickley*); Scarborough (*T. W.*); Selby (*T.F.* and *R.H.*); Sheffield (*A.D.*); Weeton ! (*J.P.*); Wakefield (*W.T.*); York (*W. C. Hewitson*, in "*Stephens' Illustrations*").

Arctia mendica *L.* Fairly common.

Adel, Leeds (*J.G.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.P.*); Bradford (*J. W.C.*); Bramham Park (*F. Oates, Ent. W. Int., June 11th,* 1859, vi. 83); Huddersfield, not uncommon (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

I have seen some beautiful varieties; one, a female having the black spots confluent, from Bradford, was in my own possession.

Arctia lubricipeda *L.* Abundant in gardens and cultivated places everywhere.

The varieties **radiata** and **zatima** *Cram.*, the latter having the dots replaced by transverse lines on the fore wings, are occasionally reared.

Arctia menthastri *W.V.* Quite as plentiful as the preceding, but more partial to lanes and field-sides.

The variety **Walkeri** *Curt.*, in which "the spots are united to form longitudinal streaks," is bred not unfrequently.

Liparis chrysorrhea *L.* Hunslet! (*J.P.*); Scarborough (*H. Marsh*); Sheffield (*A.D.* and others); Wakefield (*Mr. Hawkins, Yorkshire Naturalists' Circular, Nov.*, 1872, *p.* 89); Whitby !! (*W.E.C.*); York (*R.C., Entom., Feb.*, 1842).

Liparis auriflua *Fab.* Abundant in the eastern division, and common in many parts of the western division. Apparently very rare in the Bradford, Halifax, and Huddersfield districts; indeed I have only taken it once at Huddersfield, and then from a hawthorn hedge in my own garden.

Liparis salicis *L.* Huddersfield, formerly (*P.I.*); Hunslet (*J.P.*); Leeds (*J.G.*); Nafferton (*F.O.M., Brit. Moths*, 1871, i. 71); Selby (*R.H., Nat.*, 1864); Wakefield (*W.T.*); York (*R.C., Newman's Entom., Feb.*, 1842, i. 259).

Liparis monacha *L.* Barnsley (*J.H.*); Doncaster (*F.O.M., Brit. Moths.* 1871, i. 73); near Riccall, Selby, and I think also at Bishop's Wood (*G.T.P.*); Sheffield, in old lists (*A.D.*).

Orgyia pudibunda *L.* Fairly distributed but not generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*A. Denny*); Bramham! (*J.Sm.*); Huddersfield,

rare (*P.I.*); Pontefract (*B.H.*); Scarborough !! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Orgyia fascelina *L.* Very local.

Bramham (*J.Sm.*); Richmond (*G.P.H.* and *J. Sang*); Spurn !! the larvæ feed there on bedstraw (*W.E.C.* and *P.W.L.*); York (*W.P.*, *Ent. W. Int.*, 1860, *p.* 44, and *R.C.*, *Entom.*, *Feb.*, 1842).

Orgyia gonostigma *L.* Also a very local species.

Askham Bog (*W.P.* and *G.T.P.*); Bishop's Wood and Selby (*J.W.T.* and others); Doncaster (*Stainton's Manual*); Rossington (*W.W.*); Sheffield (*A.D.*).

Orgyia antiqua *L.* Is distributed all over the county, but much more commonly in the eastern than in the western division.

Demas coryli *L.* Not generally common, although Mr. J. Smith used to find the larvæ freely on beech trunks at Bramham at the end of September. After a high wind he has taken about a score in a few minutes. Other localities are: Filey (*F.O.M.*, *Brit. Moths*, 1871, i. 77); Huddersfield (*P.I.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Trichiura cratægi *L.* Not common.

Bramham, larvæ not uncommon at end of July (*J.Sm.*); Richmond, larvæ always on ling (*G.P.H.*); Sheffield (*A.D.*); Thirsk (*G.T.*); Wakefield (*W.T.*); York (*T. Wilson*).

Pæcilocampa populi *L.* Not often common, but well distributed.

Askham Bog (*W.P.*); Bishop's Wood (*J.G.*); Bramham, on birch trunks in November (*J.Sm.*); Edlington Wood (*T. Wilson*); Harrogate (*J. Sang*); Huddersfield (*J.V.*); Leeds (*E.B.* and *W.E.C.*); Pontefract (*B.H.*);

Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough ! (*T. W.*); Sheffield (*A.D.*); Thirsk (*J.G.*); Wakefield (*W.T.*).

Eriogaster lanestris *L.* Askern (*S.L.M.*); Bramham (*J.Sm.*); Easingwold (*G.T.*); Huddersfield, very rare (*P.I.*); Ilkley (*E.B., Zool.*, 1866); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T. W.*); Sheffield, in old lists (*A.D.*); Thirsk !! (*J.G.*); Wakefield (*W.T.*); Wilstrop (*W.E.C.*); York (*T. Wilson*).

Bombyx neustria *L.* A very scarce species, although so abundant in more southern counties.

Pontefract (*B.H.*); Sheffield (*A.D.*); York, rare (*R.C.*).

Bombyx rubi *L.* Well distributed and usually common in suitable localities.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beamsley Moors (*W.H.T.*); Bradford !! (*J.W.C.*); Cottingham, near Hull (*H. Wilkinson*); Huddersfield, formerly, but now apparently extinct (*J.V.*); Keighley !! (*J. T. Calvert*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*J.H.R.*); Selby (*T.F.* and *R.H.*); Sheffield (*A.D.*); Thorne Waste (*W.P.*); Wakefield (*W.T.*); Weeton ! (*J.P.*).

Bombyx quercus *L.* Plentiful on heaths, moorlands, and other suitable places all over the county. The specimens found in the West Riding, and probably inland specimens generally, are the form known as **callunæ** *Palmer*, but I believe the purely coast specimens are the true **quercus.** A single larva I picked up on Crosland Moor, Huddersfield, produced on July 1st, 1873, a beautiful variety of the male, in which the usual yellow band was replaced by rich olive. It was, I believe, the first record of this form having occurred in Britain, but two or three

others have since been bred. Mr. J. Varley used to breed a form having transparent wings from larvæ found in the Huddersfield district.

Odonestis potatoria *L.* Generally distributed throughout the county, and in many places very abundant.

Lasiocampa quercifolia *L.* I can only find records of three specimens: one believed by Mr. Prest to have been taken at Askham Bog; one near Sheffield (*Rev. F. W. Hope*, "*Stephens' Illustrations*"); and one at Wakefield (*Mr. Marson*, *Nat.*, *N. S.*, iii. 78).

Lasiocampa ilicifolia *L.* The moors near Sheffield and Ripon were formerly well-known localities for this scarce species, but it has not been taken there (nor anywhere else) now for some years. Lord Walsingham informs me that his collector, Mr. Thomas Eedle, *believes* he saw it on his moors at Blubberhouses in 1882, but failed to secure it. His lordship says he has long thought the locality a most likely one for the species, so perhaps it may yet turn up there. Mr. A. Doncaster records the species from Sheffield, and Messrs. W. Prest, Lickley, and Meldrum from Ripon (*Entom.*, xi. 104, *Ent. W. Int.*, viii. 51, and *Ent. W. Int.*, *June* 8, 1861, v. 75).

Saturnia carpini *Bork.* Abundant on all the heaths throughout the county.

Bradford!! (*J. W.C.*); Halifax!! (*G. T.P.*); Horton-in-Ribblesdale (*W.E.C.*); Huddersfield!! (*G. T.P.*); Ilkley (*A. Denny*); Leeds (*E.B.*); Otley Chevin (*J. W.T.*); Pateley Bridge!! (*W.D.R.*); Penistone (*J.H.*); Richmond (*G.P.H.* and *J. Sang*); Ripon (*T. Meldrum*); Scarborough!! (*J.H.R.*); Selby (*T.F.* and *R.H.*); Sheffield (*A.D.*); Strensall Common! (*W.E.C.*); Thorne (*H. F. Parsons*); Wakefield (*W.T.*); Whitby!! (*W.E.C.*).

GEOMETRÆ.

Ourapteryx sambucata *L.* Common and generally distributed.

Epione vespertaria *L.* Sandburn, about six miles from York, is now the only British habitat for this pretty species, but it occurs there in great abundance, the larvæ feeding on the dwarf sallow. A very beautiful variety, figured in the Entomologist, 1878, p. 169, sometimes occurs, and in 1878 Mr. Prest took a hermaphrodite specimen.

Mr. McEnnes, in the Naturalist, April, 1882, p. 149, records it as having occurred at Hunstey, near Beverley, twenty-four years ago.

Epione apiciaria *W.V.* Distributed but not very common.

Askham Bog, not uncommon (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Boroughbridge (*G.T.P.*); Bramham (*J.Sm.*); Hunslet near Leeds, one (*J.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wortley near Leeds (*T. Benn*).

Epione advenaria *Hüb.* Very local.

Edlington Wood, near Doncaster, not uncommon (*G.T.P.*); Maltby Wood, near Rotherham (*W. B. Pryer, Ent. W. Int., June 8th*, 1861).

Rumia cratægata *L.* Very abundant everywhere.

Venilia maculata *L.* Not common.

Bradford, in 1880 (*J. W.C.*); Malham Cove (*J. W.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Weldon Wood, near Castleford (*C.S.*); York (*Stainton's Manual*).

Angerona prunaria *L.* Bishop's Wood (*C.S.*); Edlington Wood (*F.O.M., British Moths*, 1871, i. 99); Sheffield (*A.D.*); York ! (*Stainton's Manual*).

Metrocampa margaritata *L.* Generally distributed and common.

Ellopia fasciaria *L.* In fir woods, but not generally common.

Bramham (*J.Sm.*); Harrogate (*J. Sang*); Huddersfield, rare (*J.V.*); Hunslet (*J.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); York ! (*W.P.*).

Eurymene dolabraria *L.* Bishop's Wood (*G.T.P.*); Edlington, Doncaster (*J.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); York (*W.P.* and *T. Wilson*).

Pericallia syringaria *L.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford, frequent (*J.W.C.*); Edlington Wood (*J.H.*); Huddersfield (*P.I.*); Leyburn (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

Selenia illunaria *Hüb.* Common and generally distributed.

Selenia lunaria *W.V.* Seldom common, but not unfrequently taken.

Barnsley (*W.E. Brady*); Bradford (*J.W.C.*); Bramham, rare (*J.Sm.*); Huddersfield (*J.V.*); Leeds (*E.B.*); Muker in Swaledale (*S.L.M.*); Richmond (*J. Sang*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Odontopera bidentata *L.* Generally distributed and abundant, no doubt everywhere.

Crocallis elinguaria *L.* Plentiful in all the wooded parts of the county.

Ennomos alniaria *Haw.*=**tiliaria** *Hüb.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*J.G.*); Bradford (*H. T. Soppitt*); Bramham (*J.Sm.*); Doncaster (*W.W.*); Leeds (*J.G.*); Richmond (*G.P.H.*); Ripon (*J. Waite*); Scarborough ! (*J.H.R.*); Selby (*T.F.* and *R.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Ennomos fuscantaria *Haw.* Generally scarce, but probably common where it occurs.

Askham Bog, larvæ on ash trees near the bog (*W.P.*); Doncaster (*G.T.P.*); Sheffield (*A.D.*).

Ennomos erosaria *W.V.* Bishop's Wood (*W.P.*); Edlington Wood (*G.T.P.*); Huddersfield (*J.V.*); Scarborough (*T.W.*); York (*T. Wilson*).

Ennomos angularia *W.V.* Barnsley (*J.H.*); Bishop's Wood (*J.G.*); Bradford, in 1880 (*J.W.C.*); Edlington Wood (*G.T.P.*); Pontefract (*B.H.*); Scarborough (*Stainton's Manual*); Wakefield (*W.T.*); York (*C.S.*).

Himera pennaria *L.* Generally common.

Askham Bog (*W.P.*); Bishop's Wood (*G.T.P.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Doncaster (*J.H.*); Huddersfield (*G.T.P.*); Meanwood !! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough!(*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Phigalia pilosaria *W.V.* Common in woods, &c., everywhere.

Along with the ordinary type an olive variety is found at Bradford, not uncommon (*J.W.C.*); at Bramham, not uncommon (*J.Sm.*); and at Harrogate (*H. Sims*); whilst Mr. J. W. Carter also takes a still darker form, nearly black, at Bradford; and Mr. C. Smethurst records a dark brown unicolorous form as having been taken not uncommonly at Leeds in 1880.

Nyssia hispidaria *W.V.* On the boles of oaks, &c., early in March.

Bishop's Wood (*G.T.P.*); Bramham (*J.Sm.*); Doncaster (*W.W.*); Huddersfield, was common in Storthes Hall Woods many years ago, and has been taken rarely in other woods since (*G.T.P.*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.* and *J. Batty*); Wakefield (*W.T.*); near York (*P.I.*).

Biston hirtaria *L.* Very rare.

Scarborough (*T. W.*); one at Knavesmire, York (*C.S.*); York (*R.C., Newman's Entom., Apr.*, 1842).

Amphydasis prodromaria *W.V.* Never common, but frequently taken in woods.

On the Yorkshire side of Barnard Castle (*J. Sang*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bramham (*J.Sm.*); Doncaster (*W.W.*); Edlington Wood (*S.D.B.*); Helmsley (*G.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*T. Wilson*).

Amphydasis betularia *L.* Commonly distributed throughout the county.

At Bradford (*J.W.C.*); Huddersfield (*G.T.P.*); Leeds (*W.H.T.*); and other parts of the West Riding, the black variety, **Doubledayaria** *Mill.*, is almost as common as the ordinary pale type. This form is also taken at Richmond (*G.P.H.*), and elsewhere in the other Ridings.

Hemerophila abruptaria *Thun.* Not a common species.

Bramham, rare (*J.Sm.*); Pontefract (*B.H.*); Sandal Beat, Doncaster (*F.O.M.*); Scarborough (*T. W.*); Wakefield (*W.T.*); York ! (*T.H.A.* and *G.T.*).

Cleora lichenaria *W.V.* Rather scarce.

Askham Bog (*W.P.*); Flamborough Head (*E.H.*); Richmond (*G.P.H.*); Scarborough (*T. W.*).

Boarmia repandata *L.* Plentiful in woods and lanes everywhere.

Boarmia rhomboidaria *W.V.* Abundant everywhere, but more partial to gardens than woods. The West Riding form, and perhaps that of the county generally, is the variety **perfumaria** *Newman.*

Boarmia roboraria *W.V.* This fine species is some seasons not uncommon at Bishop's Wood, near Selby (*T.F.* and *C.S.*). It has not been recorded from elsewhere in the county.

Tephrosia consonaria *Hüb.* Mr. John Jones, of Hull, informs me that he took a female specimen at Beverley, on May 29th, 1882, but being worn he threw it away. I am inclined to think the specimen was wrongly named (see *Naturalist, N. S., July*, 1882).

Tephrosia crepuscularia *W.V.* Is recorded from four localities, but I believe is often confounded with *T. biundularia*.

Bishop's Wood (*C.S.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*).

Tephrosia biundularia *Esp.* Of general occurrence.

Barnsley (*J.H.*); Bishop's Wood ! (*G.T.P.*); Bramham, on fir trunks (*J.Sm.*); Blubberhouses (*Lord Walsingham*); Doncaster (*J.H.*); Huddersfield, rare (*J.V.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wentbridge, a very dark variety (*G.T.*); York (*W.P.*).

Tephrosia punctulata *W.V.* Local.

Bishop's Wood (*C.S.*); Pontefract (*B.H.*); Scarborough (*Stainton's Manual*); Sheffield, in old list, not seen of late years (*A.D.*); York ! (*W.P.*).

The larva feeds on birch.

Gnophos obscurata *W.V.* Plentiful on the east coast, but does not occur elsewhere.

Filey (*G.T.P.*); Flamborough Head !! (*E.H.*); Scarborough (*G.T.P.*).

Pseudopterpna cytisaria *W.V.* Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); York, not uncommon (*W.P.*).

Geometra papilionaria *L.* Widely distributed and not uncommon.

Askham Bog and Sandburn, York, amongst alders and birches (*W.P.*); Barnsley (*J.H.*); Bingley (*E.P.P.B.*); Bishop's Wood (*C.S.*); Bradford, sometimes common (*J.W.C.*); Doncaster ! (*W.W.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Raskelf near Easingwold (*G.T.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Iodis lactearia *L.* Widely distributed and generally common.

Phorodesma bajularia *W.V.* This pretty and local species is recorded from Bishop's Wood (*C.S.*); Edlington Wood, Doncaster (*G.T.P.*); Sheffield (*A.D.*); York (*W.P.*).

Hemithea thymiaria *L.* Also reported from but few localities.

Brough (*C.S.*); Pontefract (*B.H.*); Raskelf near Easingwold !! (*G.T.*); Thorne near Goole (*W.P.*); York ! (*R.C.*).

Ephyra porata *L.* Recorded from near York by Mr. W. Helstrip (*Ent. W. Int.*, *Nov.* 12, 1859, *p.* 53).

Ephyra punctaria *L.* Distributed but not very common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*J.W.T.*); Bramham (*J.Sm.*); Doncaster (*W.W.*); Pontefract (*B.H.*); Sheffield (*A.D.*); Woodlesford (*J.P.*).

Ephyra trilinearia *Bork.* Not common.

Edlington, Doncaster (*J.H.* and *W.W.*); Micklefield (*C.S.*); Pontefract (*B.H.*); Scarborough (*Stainton's Manual*); Wakefield (*W.T.*).

Ephyra omicronaria *W.V.* Not uncommon in woods where the maple grows freely.

Edlington Wood ! (*J.H.* and *W.W.*); Leeds, at Burley (*C.S.*); Sheffield (*A.D.*); York (*Stainton's Manual*).

Ephyra pendularia *L.* Very local.

Askham Bog (*W.P.*); Pontefract (*B.H.*).

Hyria auroraria *Gn.* This beautiful little species occurs freely on Thorne Waste, near Goole, but has not been noticed elsewhere in the county (*G.T.P.*). The red form is the type at Thorne, whereas in the Cambridgeshire fens the yellow form is the prevalent one (*W.W.*).

Asthena luteata *W.V.* Distributed and fairly common.

Adel near Leeds (*C.S.*); Bishop's Wood (*G.T.P.*); Bradford (*J.W.C.*); Bramham (*J. Sm.*); Doncaster (*J.H.* and *W.W.*); Huddersfield (*J.V.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York! (*Stainton's Manual*).

Asthena candidata *W.V.* Bradford! (*J.W.C.*); Bramham! (*J.Sm.*); Doncaster (*J.H.* and *W.W.*); Huddersfield, rare (*J.V.*); Meanwood near Leeds (*A. Denny*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Asthena sylvata *W.V.* Very local but often abundant where it occurs.

Barnsley, at New Park Spring Wood (*J.H.*); Edlington Wood, Doncaster, where in some seasons it perfectly swarms, and as many as twenty may be counted sitting on the trunk of a single tree in June (*J.H.*, *W.P.*, and *G.T.P.*); Huddersfield, very rare (*P.I.*); Richmond!! (*G.P.H.* and *J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Asthena Blomeraria *Dbl.* Scarce and very local. Feeds on wych elm.

Helmsley (*G. P. Dutton*, *Naturalist*, 1875); Nunburnholme (*F.O.M.*, *Morris' Nat.*, viii. 188, *June* 26, 1858); Pickering (*F.O.M.*, *British Moths*, 1871, i. 152); Scarborough (*G.T.P.* and *T.W.*).

Eupisteria heparata *W.V.* Not uncommon among alder in damp places.

Adel near Leeds (*G.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.P.*); Blubberhouses (*Lord Walsingham*); Bradford! (*J.W.C.*); Bramham !! (*J.Sm.*); Huddersfield (*P.I.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Thorne! (*W.W.*); Wakefield (*W.T.*).

Venusia cambricaria *Gn.* Local but widely distributed, and usually plentiful where it occurs.

Barnsley !! (*J.H.*); Bingley !! (*E.P.P.B.*); Bradford!! (*J.W.C.*); Hebden Bridge !! (*G.T.P.*); Richmond ! (*G.P.H.*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Sowerby Bridge (*C.S.*); Wharncliffe (*J.H.*).

Mr. W. H. Tugwell, of Greenwich, possesses several specimens of a very distinct and dark variety which he informs me were sent to him from Rotherham.

Acidalia rubricata *W.V.* The only claim this species has to appear in our county list is based upon the following records:—"A specimen was taken at Stockton-in-the-Forest by Mr. Baines, and I had another specimen taken by Mr. Baines" (*T. H. Allis, Ent. W. Int.*, 1859); "a specimen was taken by Mr. Birks near York, July 15th, 1859" (*Ent. W. Int.*, vi. 130, and *Ent. Ann.*, 1860, *p.* 141).

Acidalia scutulata *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford (*J. A. Butterfield*); Bramham ! (*J.Sm.*); Flamborough Head ! (*E.H.*); Huddersfield, I have not seen it for some years (*G.T.P.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Acidalia bisetata *Bork.* Widely distributed and generally common.

Askham Bog (*W.P.*); Barnsley (*W. E. Brady*); Boroughbridge (*W.P.*); Bradford ! (*J.W.C.*); Bramham !

(*J.Sm.*); Edlington Wood ! (*G.T.P.*); Huddersfield (*G.T.P.*); Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Acidalia interjectaria *W.V.* Recorded from Huddersfield, but I have never seen it there (*G.T.P.*).

Acidalia incanaria *Hüb.* Barnsley (*J.H.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*P.I.*); Leeds ! (*E.B.*); Otley (*J.W.T.*); Pannal (*W.D.R.*); Redcar (*J. Sang*); Richmond (*G.P.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*T. Wilson*).

Acidalia straminata *Tr.* This interesting species was taken not uncommonly, and in fine condition, on the Thorne side of Thorne Waste by various members on the occasion of the Yorkshire Naturalists' Union's visit there on July 9th, 1881 (*G.T.P.* and *W.P.*).

Acidalia immutata *L.* Not common.

Askham Bog (*W.P.*); Bramham ! (*J.Sm.*); Harrogate (*J. Sang*); Leeds (*J.W.T.*); Scarborough (*Stainton's Manual*); Sheffield, in old list (*A.D.*); York (*T. Wilson*).

Acidalia remutata *Hüb.* Common.

Askham Bog (*W.P.*); Bishop's Wood (*C.S.*); Bradford ! (*J.W.C.*); Bramham ! (*J.Sm.*); Doncaster (*J.H.*); Huddersfield ! (*G.T.P.*); Meanwood, Leeds (*W.H.T.*); Pontefract (*B.H.*); Scarborough ! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Acidalia fumata *Steph.* Rather common.

Bingley (*E.P.P.B.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Huddersfield, in woods having an undergrowth of ling and bilberry (*G.T.P.*); Richmond (*J. Sang*); Scarborough (*G.T.P.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

Acidalia imitaria *Hüb.* Not generally common.

Askham Bog (*W.P.*); Bramham (*J.Sm.*); Pontefract (*B.H.*); Raskelf, common on ragwort flowers (*G.T.*); Redcar (*J. Sang*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*).

Acidalia aversata *L.* Abundant everywhere.

The banded form, variety **lividata** *Gn.*, is common at Huddersfield, and no doubt equally so elsewhere.

Acidalia inornata *Haw.* Askham Bog (*W.P.*); Bingley (*E.P.P.B.*); Huddersfield, abundant in woods that have an undergrowth of ling, on which the larva feeds, but not found on the open moors (*G.T.P.*); Meanwood, Leeds (*W.H.T.*); Sheffield (*A.D.*); York (*E.B.*).

Acidalia emarginata *L.* Not a common species.

Hornsea (*N.F.D., Nat., N.S.*, vi. 195); Pontefract (*B.H.*); York (*W.P.* and *G.T.*).

Timandra amataria *L.* Scarce in the West Riding, but fairly common elsewhere.

Askham Bog (*W.P.*); Bishop's Wood (*G.T.*); Doncaster (*G.T.P.*); Fairburn (*C.S.*); Goole (*J. Harrison*); Ledsham ! (*C.S.*); Micklefield (*C.S.*); Sheffield (*A.D.*).

Cabera pusaria *L.* Abundant everywhere.

Cabera rotundaria *Haw.* Only recorded from two localities, but is probably often passed over as *C. pusaria*, of which species it is by many considered only a variety.

Richmond (*G.P.H.*); Scarborough (*T. W.*).

Cabera exanthemaria *Scop.* Generally distributed and rather common among sallow.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Blubberhouses (*Lord Walsingham*); Bramham ! (*J.Sm.*); Goole Moors (*J. Harrison*); Harrogate (*J. Sang*); Huddersfield (*G.T.P.*); Leeds (*C.S.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Saltaire (*J. Terry*); Wakefield (*W.T.*).

Corycia temerata *W.V.* Not common.

Bishop's Wood (*C.S.*); Edlington, Doncaster (*J.H.*); Sheffield (*A.D.*); York (*Stainton's Manual*).

Corycia taminata *W.V.* Recorded from Wakefield (*W.T.*); and York (*Stainton's Manual*); but I have never seen it in the county.

Macaria liturata *L.* Not uncommon in fir woods.

Bingley (*J. A. Butterfield*); Blubberhouses (*Lord Walsingham*); Bradford (*J. W.C.*); Bramham ! (*J. Sm.*); Doncaster (*W. W.*); Harrogate (*J. Sang*): Huddersfield, rare (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Thorne (*W.P.*); Wakefield (*W.T.*); York (*W.P.*).

Halia wavaria *L.* Abundant in all gardens containing currant bushes.

Strenia clathrata *L.* The east coast specimens are large, and have the ground colour generally much whiter than it is in southern examples.

Bramham ! (*J.Sm.*); Flamborough Head ! (*E.H.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough !! (*G.T.P.*); Wakefield (*W.T.*); Weldon Wood near Pontefract (*C.S.*); York ! (*R.C.*).

Panagra petraria *Hüb.* Adel, Leeds ! (*J. W.T.*); Barnsley (*J.H.*); Bradford ! (*J. W.C.*); Bramham ! (*J.Sm.*); Doncaster (*W. W.*); Harrogate (*J. Sang*); Mirfield, abundant among bracken in the Hagg Wood (*G.T.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield ! (*C. W. Richardson*); York ! (*Stainton's Manual*).

Numeria pulveraria *L.* Of wide distribution but seldom common anywhere.

Bishop's Wood (*C.S.*); Bradford (*J. W.C.*); Bramham (*J.Sm.*); Edlington, Doncaster (*J.H.* and *W. W.*); Hud-

dersfield (*J.V.*); Pontefract (*B.H.*); Richmond (*J.Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York ! (*Stainton's Manual*).

Scodiona belgiaria *Hüb.* Generally common on heaths. In the Thorne Moor specimens the males are darker and have a more irony appearance than south West Riding examples.

Adel, Leeds! (*C.S.* and *J.W.T.*); Bingley! (*E.P.P.B.*); Bradford (*J.W.C.*); Halifax !! (*G.T.P.*); Huddersfield ! (*G.T.P.*); Ilkley (*A. Denny*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Thorne Waste near Goole ! (*G.T.P.*).

Fidonia carbonaria *L.* The following note appears in the *Entomologists' Weekly Intelligencer* of May 10th, 1856, i. 44 :—"April 24th, ascended Engleborough, on the Lancashire side, behind Ingleton ; when about half way up took the first *Eupisteria carbonaria* I ever saw alive ! C. S. Gregson, Edge Lane, Old Swan, Liverpool, May 3rd, 1856." The record needs confirmation.

Fidonia atomaria *L.* Apparently abundant on heaths throughout the county. In the West Riding (and probably elsewhere) the males are much smaller and *darker*, but the females *paler*, than southern specimens.

Fidonia piniaria *Hüb.* Widely distributed and generally abundant in fir woods. In the males the ground colour is pure white, whereas in southern specimens it is yellow.

Adel (*W.H.T.*); Barden ! (*E.P.P.B.*); Barnsley (*J.H.*); Bingley ! (*E.P.P.B.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Doncaster (*W.W.*); Halifax !! (*G.T.P.*); Harrogate (*W.E.C.*); Horsforth, Leeds (*C.S.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Weldon Wood (*C.S.*); York !! (*E.B.*).

Lythria purpuraria *L.* The following notice on this species is published in the *Entomologists' Monthly Magazine* for March 1870, vi. 238 :—"I have two specimens of this rare insect taken in Stockton Forest, four miles from here, by Henry Baines. These are set with short household pins, were taken at the same place, and by the same captor as my old *Acidalia rubricata*, which species has since been taken in the same locality. T. H. Allis, Osbaldwick, near York, February, 1870."

Aspilates strigillaria *Hüb.* Not so common as one would expect to find it.

Huddersfield, very rare (*P.I.*); Ilkley Moors (*C.S.*); Scarborough (*J.H.R.*); Strensall near York (*E.B.* and *A. Denny*).

Abraxas grossulariata *L.* Abundant everywhere.

The variety **Varleyata** *Porritt*, having a very deep black border, has been bred in some numbers at Bradford, Huddersfield, and elsewhere; and Mr. Prest says it also occurs at York. In 1878 Mr. J. Firth bred two nearly white specimens from larvæ collected near Bradford.

Abraxas ulmata *Fab.* Distributed throughout the county and generally abundant.

A peculiar lead-coloured form sometimes occurs, and many other beautiful varieties have been taken. Edlington Wood is noted for aberrations in this species.

Barnsley (*J.H.*); Bishop's Wood ! (*G.T.P.*); Bolton Woods (*W.E.C.*); Bradford !! (*J.W.C.*); Bramham ! (*J.Sm.*); Edlington Wood !! (*G.T.P.*); Flamborough Head (*E.H.*); Grassington (*W.D.R.*); Harewood (*C.S.*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Otley Chevin !! (*W.D.R.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wentbridge (*J.W.T.*); York (*T. Wilson*).

Ligdia adustata *W.V.* Not uncommon among spindle.

Bishop's Wood (*A. Denny*); Bramham ! (*J.Sm.*); Doncaster (*W.W.*); Edlington Wood (*J.H.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Lomaspilis marginata *L.* Common. Pretty varieties sometimes occur.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*J.W.T.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Edlington Wood ! (*G.T.P.*); Goole Moors (*J. Harrison*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*J. Sang*); Scarborough !! (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hybernia rupicapraria *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*P.I.*); Leeds ! (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hybernia leucophæaria *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford !! (*J.W.C.*); Bramham ! (*J.Sm.*); Doncaster, "especially dark forms" (*W.W.*); Huddersfield (*P.I.*); Leeds (*E.B.*); Meanwood (*W.H.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

The variety **marmorinaria** *Esp.*, is plentiful in some localities.

Hybernia aurantiaria *Hüb.* Generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*J.W.T.*); Bradford !! (*J.W.C.*); Bramham ! (*J.Sm.*); Harewood (*Henry Lupton*); Huddersfield (*G.T.P.*); Meanwood ! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hybernia progemmaria *Hüb.* Abundant everywhere.

The dark, almost black, form of both male and female, variety **fuscata** *Mosley*, is common at Huddersfield (*G.T.P.*); and at Wakefield (*C. W. Richardson*); also probably throughout the south West Riding.

Hybernia defoliaria *L.* Distributed throughout the county and usually abundant.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Bradford !! (*J. W.C.*); Bramham ! (*J.Sm.*); Brough (*W.D.R.*); Huddersfield (*G.T.P.*); Leeds ! (*E.B.*); Pateley Bridge (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough (*T. W.*); Sheffield (*A.D.*); Thirsk (*G.T.*); Wakefield (*W.T.*).

Also very variable; a nearly black unicolorous form occurs occasionally at Shipley Glen, Bradford (*J. W.C.*).

Anisopteryx æscularia *W.V.* Common.

Adel (*G.T.*); Arthington !! (*H. Marsh*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford (*J. W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Leeds ! (*A. Denny*); Masham (*C.S.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*); Weldon Wood (*C.S.*).

Cheimatobia brumata *L.* Abundant everywhere.

Cheimatobia boreata *Hüb.* Probably common wherever there is any extent of birch.

Barnsley (*J.H.*); Bradford !! (*J. W.C.*); Bramham ! (*J.Sm.*); Doncaster ! (*W. W.*); Huddersfield ! (*G.T.P.*); Meanwood, Leeds (*W.H.T.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York !! (*W.P.*).

Oporabia dilutata *W.V.* Abundant everywhere.

The dark-brown variety, **obscurata** *Staud.*, is as common or more so in the south West Riding as the type.

The variety **autumnaria** *Gn.* occurs at Huddersfield (*G.T.P.*); at Richmond (*G.P.H.*); and doubtless elsewhere. This latter variety is by some considered a distinct species, and my own experience is that it is a considerably earlier insect in appearance on the wing.

Oporabia filigrammaria *H.S.* Adel, Leeds (*C.S.*); Bramham (*J.Sm.*); Halifax (*G.T.P.*); Huddersfield (*P.I.*); Rombald's Moor (*J. W. C.* and *C.S.*); Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough (*T. W.*).

Larentia didymata *L.* Abundant everywhere.

Very dark forms are common in the south West Riding.

Larentia multistrigaria *Haw.* Of general occurrence and in many districts plentiful. Mr. Butterfield has taken a peculiar dark form near Bingley.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford ! (*J. W. C.*); Huddersfield!!(*G.T.P.*); Meanwood!(*J. W. T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Larentia cæsiata *W.V.* Very abundant on all the high moors in the West Riding, and many beautiful dark varieties occur.

Barden and Burnsall Moors !! (*W.D.R.*); Blubberhouses ! (*Lord Walsingham*); Bradford !! (*J. W. C.*); Halifax ! (*G.T.P.*); Harrogate (*J. Sang*); Huddersfield !! (*G.T.P.*); Ilkley (*W.E.C.*); Pateley Bridge (*G. Jackson*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); York, one specimen in 1877 (*W.P.*).

Larentia ruficinctata *Gn.* Mr. J. W. Carter sent me for determination a specimen of this species taken on Malham Moor, August, 1876. It had previously been reported from Huddersfield, but in that instance I am not sure that a variety of *L. cæsiata* was not mistaken for it.

Larentia salicata *Hüb.* Occurs in widely separated localities, but only in one or two of them does it appear to be very common. The Bingley specimens are darker and have the markings much less clear and distinct than any Scotch specimens I have noticed.

Bingley !! (*E.P.P.B.*); "in 1879, extremely abundant along an old wall bordering the west part of Bingley Wood" (*J. A. Butterfield*); Huddersfield (*S.L.M.*); Richmond (*J. Sang*); Saltaire (*J.W.C.*); Scarborough (*T.W.*); Wakefield (*W.T.*).

Larentia olivata *W.V.* Bradford ! (*J.W.C.*); Huddersfield (*J.V.*); Pateley Bridge (*G. Jackson*); Redcar (*J. Sang*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Larentia pectinitaria *Fuess.* Common and distributed.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Goole (*J. Harrison*); Grassington (*G.T.P.*); Huddersfield ! (*G.T.P.*); Leeds !! (*E.B.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*J. Sang*); Scarborough (*G.T.*); Sheffield (*A.D.*); Thorne near Goole (*W.P.*); Wakefield (*W.T.*).

Emmelesia affinitata *Steph.* Not generally common.

Bradford ! (*J.W.C.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); York (*Stainton's Manual*).

Emmelesia alchemillata *L.* Much commoner than the last.

Askham Bog (*W.P.*); Balby near Doncaster (*W.W.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Flamborough Head (*E.H.*); Huddersfield (*J.V.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Rotherham !! (*W. Rodgers*); Scarborough (*T.W.*); Sheffield (*A.D.*); Thorne near Goole (*G.T.P.*); Wakefield (*W.T.*).

Emmelesia albulata *W.V.* Fairly common in meadows where *Rhinanthus crista-galli* grows.

Balby near Doncaster (*W.W.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Huddersfield, formerly very abundant, but scarce of late years (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*Stainton's Manual*); near Selby (*C.S.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York ! (*Stainton's Manual*).

Emmelesia decolorata *Hüb.* Generally common amongst *Lychnis.*

Askham Bog (*W.P.*); Balby near Doncaster (*W.W.*); Barnsley (*J.H.*); Beverley (*J. Harrison*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Hambleton (*G.T.*); Hornsea (*N.F.D.*); Huddersfield !! (*G.T.P.*); Leeds (*E.B.*); Pateley Bridge (*W.D.R.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wentbridge (*G.T.*).

Emmelesia tæniata *Steph.* We have only one locality for this local species.

Scarborough (*T.W.*).

Eupithecia venosata *Fab.* Not uncommon amongst *Silene inflata.*

Barnsley (*J.H.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Leeds (*C.S.* and *J.W.T.*); Leyburn (*J. Sang*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*T. Wilson*).

Eupithecia linariata *W.V.* Generally common amongst toadflax, but seldom seen in the image state. The larvæ used to feed in profusion in the flowers and seed-capsules of *Linaria valgaris* growing in my garden and adjoining fields, but I never saw more than one or two moths on the wing there, although I often looked for them.

Barnsley (*J.H.*); Bramham! (*J.Sm.*); Huddersfield!! (*G.T.P.*); Kirkstall (*J.W.T.*); Leeds (*C.S.*); Pontefract (*B.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Eupithecia pulchellata *Steph.* Not uncommon amongst foxglove.

Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Bradford (*J.W.C.*); Harrogate (*Stainton's Manual*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Scarborough (*T.W.*); Sheffield (*A.D.* and *W.W.*); York (*J.T.C.*).

Eupithecia centaureata *W.V.* Flamborough Head (*E.H.*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Scarborough (*P.I.*); Sheffield (*A.D.*); York (*J.T.C.*).

Eupithecia succenturiata *L.* Pontefract (*B.H.*); Scarborough (*Stainton's Manual*); York (*Stainton's Manual*).

Eupithecia subfulvata *Haw.* Barnsley (*J.H.*); Flamborough Head (*E.H.*); Richmond, also the variety **oxydata** *Tr.* (*G.P.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

Eupithecia subumbrata *W.V.* Not common.

Sheffield (*A.D.*); York (*Stainton's Manual*).

Eupithecia plumbeolata *Haw.* Adel near Leeds (*G.T.*); Huddersfield (*P.I.*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*).

Eupithecia pygmæata *Hüb.* We have several localities for this day-flying species.

Bolton Woods; Bramham (*J.Sm.*); Richmond (*G.P.H.* and *J. Sang*); between Royston and Wakefield (*J.H.*); Scarborough (*T.W.*); Wharncliffe, one in 1881 (*F. Ellis*); York (*Stainton's Manual*).

Eupithecia satyrata *Hüb.* Bramham (*J.Sm.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough (*Stainton's Manual*).

Eupithecia castigata *Haw.* Common, probably everywhere.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bingley (*E.P.P.B.*); Bramham (*J.Sm.*); Huddersfield (*G.T.P.*);

Richmond (*J. Sang*); Scarborough (*F.O.M.*); Sheffield (*A.D.*); York !! (*W.P.*).

Eupithecia trisignata *H.S.* Bishop's Wood !! (*W.P.*); Harrogate (*J. Sang*); Sharlston near Wakefield (*G.T.P.*); Scarborough (*T.W.*); York (*W.P.*).

Eupithecia lariciata *Frey.* Generally common wherever larch grows in any quantity.

Adel near Leeds (*G.T.*); Bingley (*E.P.P.B.*); Bishop's Wood (*G.T.P.*); Blubberhouses (*Lord Walsingham*); Brantingham near Brough !! (*G.T.P.*); Edlington near Doncaster (*J.H.*); Huddlestone (*C.S.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wentbridge (*G.T.*); York (*W.P.*).

Eupithecia virgaureata *Dbl.* Harrogate (*J. Sang*); Huddersfield (*P.I.*); Scarborough (*T.W.*).

Eupithecia albipunctata *Haw.* Local, but not uncommon in some localities amongst *Angelica sylvestris*, on the flowers and seeds of which the larva feeds. Mr. W. Prest breeds a black form from the larvæ he collects at Bishop's Wood, which the Rev. H. Harpur Crewe, M.A., has described as variety **angelicata**.

Askham Bog (*W.P.*); Bishop's Wood !! (*J.G.* and *W.P.*); Bramham (*J.Sm.*); Harrogate (*J. Sang*) Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); York (*W.P.*).

Eupithecia valerianata *Hüb.* Larvæ in flowers of *Valeriana officinalis* at Askham Bog (*W.P.*).

Eupithecia pimpinellata *Hüb.* Askham Bog (*W.P.*); Bradford (*J.W.C.*); York !! (*W.P.*).

Eupithecia fraxinata *Crewe.* Seldom seen in the image state, but probably only wants looking for to be found much commoner. I find the larvæ freely on ash, where they

shew a great partiality for the leaves on the young shoots, which often spring from the trunk near the ground.

Askham Bog (*W.P.*); Halifax (*Stainton's Manual*); Huddersfield ! (*G.T.P.*); Sheffield (*A.D.*); York (*T. Wilson*).

Eupithecia extensaria *Frey.* Our county has produced the only two specimens of this species which have yet been taken in Britain. Mr. W. Prest detected a specimen in the boxes of Mr. Buck, who took it on *Artemisia* at Spurn about 1870. The other specimen was taken on waste ground near Hull in June 1873 by Mr. Sawyer, and is now I believe in the collection of Mr. Philip B. Mason, F.L.S., of Burton-on-Trent.

Eupithecia indigata *Hüb.* Adel near Leeds (*W.H.T.*); Bramham (*J.Sm.*); Richmond (*J. Sang*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*); York !! (*W.P.*).

Eupithecia constrictata *Gn.* Very local.

Bramham (*J.Sm.*); Richmond ! (*G.P.H.*).

Eupithecia nanata *Hüb.* Apparently abundant on all heaths.

Adel Moors (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Halifax !! (*G.T.P.*); Harrogate (*J. Sang*); Huddersfield !! (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Saddleworth (*G.T.P.*); Scarborough (*G.T.*); Sheffield (*A.D.*); Thorne Waste (*W.P.*).

Eupithecia subnotata *Hüb.* Askham Bog (*W.P.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Huddersfield !! (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Sheffield (*A.D.*).

Eupithecia vulgata *Haw.* Abundant no doubt everywhere.

Adel near Leeds (*C.S.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bramham ! (*J.Sm.*); Huddersfield !! (*G.T.P.*);

Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough ! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Eupithecia absynthiata *L.* Askham Bog (*W.P.*); Huddersfield (*G.T.P.*); Richmond (*G.P.H.*); Scarborough ! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Eupithecia minutata *Hüb.* Adel near Leeds (*G.T.*); Bingley (*E.P.P.B.*); Blubberhouses (*Lord Walsingham*); Huddersfield, abundant in woods having an undergrowth of *Calluna vulgaris*, but not on the open heaths or moors (*G.T.P.*); Richmond (*G.P.H.*); Sheffield (*A.D.*); Thorne Waste (*W.P.*); York (*T. Wilson*).

Eupithecia assimilata *Dbl.* Common; the larva feeds on hop, and in gardens on currant-bushes.

Askham Bog (*W.P.*); Bradford (*J. W.C.*); Huddersfield !! (*G.T.P.*); Richmond (*G.P.H.*); Sheffield (*A.D.*).

Eupithecia tenuiata *Hüb.* Larvæ in sallow catkins.

Askham Bog (*W.P.*); Bramham (*J.Sm.*); Richmond (*G.P.H.*); Scarborough (*T. W.*); Sheffield (*A.D.*).

Eupithecia subciliata *Gn.* This local species was taken not uncommonly about maples, on the flowers of which the larva feeds, in the Copgrove Woods, by various members on a joint excursion of several Yorkshire Naturalists' Societies to Boroughbridge on the August Bank Holiday, 1876. The first specimen was secured by Mr. C. Smethurst of Leeds (*G.T.P.*).

Eupithecia dodoneata *Gn.* Another scarce species.

Scarborough (*T. W.*); Sheffield (*W. Thomas, Ent. W. Int., May 11th*, 1861); York (*T. Wilson*).

Eupithecia abbreviata *Steph.* Askham Bog (*W.P.*); Bramham ! (*J.Sm.*); Castle Howard (*W.P.*); Doncaster (*W. W.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough !! (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Eupithecia exiguata *Hüb.* Askham Bog (*W.P.*); Bishop's Wood (*G.T.P.*); Doncaster (*W.W.*); Huddersfield (*P.I.*); Richmond (*J.Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Eupithecia sobrinata *Hüb.* York, out of juniper (*T. Wilson, Entomologists' Monthly Magazine*, xiv. 212).

Eupithecia togata *Hüb.* Mr. J. Sang of Darlington assures me that a specimen of this species was taken at Richmond; and this is further confirmed by the Rev. G. P. Harris, formerly of Richmond, who says the specimen was taken by Mr. Groves.

Eupithecia pumilata *Hüb.* Huddersfield, one in 1871 by Mr. S. L. Mosley (*G.T.P.*); Leeds (*E.B.*); Scarborough ! (*Stainton's Manual*).

Eupithecia coronata *Hüb.* Scarborough (*Stainton's Manual*).

Eupithecia rectangulata *L.* Not uncommon.

Askham Bog (*W.P.*); Bramham ! (*J.Sm.*); Edlington Wood (*G.T.P.*); Huddersfield (*J.V.*); Pannal (*W.D.R.*); Richmond (*G.P.H.*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Collix sparsata *Hüb.* Some seasons common in Askham Bog, York, which is one of the few British localities of the species. The larvæ feed on *Lysimachia vulgaris* (*W.P.*).

Lobophora sexalata *Hüb.* Rare.

Askham Bog (*W.P.*); Scarborough (*T.W.*).

Lobophora hexapterata *W.V.* Found amongst aspen, but not very common.

Bramham ! (*J.Sm.*); Edlington Wood (*J.H.*); Rotherham (*Wm. Rodgers*); Scarborough (*G.T.P.*); Sheffield (*A.D.*).

Lobophora viretata *Hüb.* A scarce species with us.

Richmond (*G.P.H.* and *J. Sang*); Scarborough (*T.W.*).

Lobophora lobulata *Hüb.* The commonest of the genus. Adel near Leeds (*C.S.*); Askham Bog (*W.P.*); Bishop's Wood (*C.S.*); Bramham, on alder trunks in March (*J.Sm.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough !! (*T.W.*); Sheffield (*A.D.*); York !! (*W.P.*).

Lobophora simulata *Hüb.* Very rare, I have never seen it. Huddersfield (*P.I.*); York (*R.C.*).

Thera variata *W.V.* Not uncommon in fir woods. Adel (*G.T.*); Bishop's Wood (*C.S.*); Bramham ! (*J.Sm.*); Harrogate (*J. Sang*); Huddersfield (*J.V.*); Leeds (*C.S.*); Pontefract (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Sandburn near York (*W.P.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Thera firmata *Hüb.* Local, but common in some places. Bramham (*J.Sm.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*Stainton's Manual*); Wakefield (*W.T.*); York !! (*W.P.*).

Hypsipetes ruberata *Frey.* Askham Bog (*W.P.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); York (*T. Wilson*).

Hypsipetes impluviata *W.V.* Fairly common amongst alders. Adel near Leeds (*J.W.T.*); Askham Bog (*W.P.*); Bishop's Wood (*C.S.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Halifax (*G.T.P.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Thorner (*G.T.*).

Hypsipetes elutata *W.V.* Very abundant everywhere, and varies considerably. In the south West Riding there appear to be two distinct races: a small very dark, often quite black, form which occurs on the moors and in woods having an undergrowth of bilberry and ling; and the other the ordinary larger and usually greener form, which occurs

in lanes and woods generally. Both forms are equally plentiful within a good radius around Huddersfield, the small dark form feeding principally I think on bilberry, the other feeding on sallow and many other trees.

Melanthia rubiginata *W.V.* Generally common.

Adel !! (*C.S.*); Askham Bog (*W.P.*); Bishop's Wood (*C.S.*); Bradford !! (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Melanthia ocellata *L.* Common and generally distributed.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford ! (*J.W.C.*); Bramham ! (*J.Sm.*); Harrogate (*J. Sang*); Huddersfield ! (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Melanthia albicillata *L.* Fairly distributed and common.

Bishop's Wood !! (*G.T.P.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Cudworth near Barnsley (*G.T.P.*); Edlington Wood ! (*G.T.P.*); Ilkley (*W.E.C.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Thorner !! (*C.S.*); Wakefield (*G.T.P.*); Washburn Valley (*J.G.*); Wharncliffe (*C.S.*); York ! (*W.P.*).

A very dark form, variety **suffusa** *Carrington*, has been bred by Mr. T. Meldrum of Ripon.

Melanippe hastata *L.* Common in several localities among birch.

Bishop's Wood ! (*W.E.C.*); Edlington Wood ! (*G.T.P.*); Huddersfield (*G.T.P.*); New Park Spring Woods, Cudworth !! (*G.T.P.*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wharncliffe (*C.S.*); York (*Stainton's Manual*).

Melanippe tristata *L.* Barden ! (*E.P.P.B.*); Barnsley (*J.H.*); Blubberhouses (*Lord Walsingham*); Huddersfield (*G.T.P.*); Scarborough (*T.W.*); Wakefield (*W.T.*); Wharncliffe near Sheffield (*A.D.* and *W.W.*).

Melanippe rivata *Hüb.* Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Rotherham (*W. Rodgers*); Wakefield (*W.T.*).

Probably occurs in many other localities, but has been passed over as *M. subtristata.*

Melanippe subtristata *Haw.* Apparently very common throughout the county.

Melanippe montanata *W.V.* Abundant everywhere.

A form taken by Mr. T. Eedle at Blubberhouses in 1882 "was very like the extreme northern form" (*Lord Walsingham*).

Melanippe galiata *W.V.* Abundant in the south West Riding among *Galium saxatile*; also common elsewhere.

Bradford ! (*J.W.C.*); Halifax (*G.T.P.*); Huddersfield !! (*G.T.P.*); Leeds (*C.S.*); Pontefract (*B.H.*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Melanippe fluctuata *L.* Abundant everywhere.

Anticlea rubidata *L.* Bramham ! (*J.Sm.*); Doncaster (*W.P.*).

Anticlea badiata *W.V.* Plentiful no doubt everywhere among rose.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield !! (*G.T.P.*); Leeds !! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*J. Birks*).

Anticlea derivata *W.V.* Common, but not so plentiful as the last.

Askham Bog (*W.P.*); Beverley (*J. Harrison*); Bingley (*E.P.P.B.*); Boroughbridge (*H. Andrews*); Bramham ! (*J.Sm.*); Doncaster (*J.H.*); Huddersfield (*J.V.*); Huddlestone (*C.S.*); Pontefract (*B.H.*); Plumpton (*W.D.R.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York ! (*T.H.A.*).

Anticlea berberata *W.V.* Mr. A. Doncaster assures me this species "used to occur on a barberry hedge at Marr, near Doncaster, but the hedge is now replaced by a stone wall, and probably the species is extinct there"; Richmond (*G.P.H.*).

Coremia munitata *Hüb.* A local species.

Rotherham (*W. Rodgers*); Scarborough (*T.W.*); Sheffield, not scarce (*A.D.*).

Coremia propugnata *W.V.* Bradford (*J.W.C.*); Blubberhouses (*Lord Walsingham*); Doncaster (*J.H.*); Harrogate (*J. Sang*); Huddersfield (*P.I.*); Leeds (*E.B.*); Muker (*S.L.M.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Coremia ferrugata *L.* Askham Bog (*W.P.*); Blubberhouses, a variety (*Lord Walsingham*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Doncaster (*J.H.*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Coremia unidentaria *Haw.* Askham Bog (*W.P.*); Bishop's Wood (*G.T.*); Boroughbridge (*G.T.P.*); Bramham (*J.Sm.*); Harrogate (*J. Sang*); Leeds (*E.B.*); also recorded as having occurred at Huddersfield, but I have never seen it there.

Camptogramma bilineata *L.* Abundant almost everywhere, but less so in the south West Riding than elsewhere.

Camptogramma fluviata *Hüb.* A specimen of this rarity was taken at York by Mr. W. Prest, on May 22nd, 1860, and another on July 4th, 1868, by Mr. J. T. Carrington (*Ent. W. Int.*, *Oct. 20th*, 1860, and *Ent. Ann.* 1869, *p.* 141, respectively).

Phibalapteryx lignata *Hüb.* Partial to marshy ground.
Askham Bog (*W.P.*); Pontefract (*B.H.*); Scarborough (*T. W.*).

Phibalapteryx polygrammata *Bork.* Very rare.
Scarborough (*T. W.*).

Scotosia dubitata *L.* Moderately common.
Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford (*J. W.C.*); Bramham (*J.Sm.*); Huddersfield (*G.T.P.*); Ilkley ! (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Scotosia vetulata *W.V.* Not a common species.
Askham Bog (*W.P.*); Doncaster (*G.T.P.* and *W.P.*).

Scotosia rhamnata *W.V.* Is recorded from one locality only.
Askham Bog (*W.P.*).

Scotosia certata *Hüb.* Bedale (*W. Culverwell*); Pontefract (*B.H.*).

Scotosia undulata *L.* A pretty but uncommon species.
Askham Bog (*W.P.*); Bishop's Wood (*C.S.*); Leeds (*E.B.*).

Cidaria psittacata *W.V.* Local.
Pontefract (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough (*T. W.*); Wentbridge (*C.S.*); near York (*J.T.C.*).

Cidaria miata *L.* Fairly common.
Barnsley (*J.H.*); Huddersfield (*G.T.P.*); Leeds (*A. Denny*); Pontefract (*B.H.*); Richmond (*G.T.P.* and *J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Cidaria corylata *Thunb.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Edlington Wood (*G.T.P.*); Huddersfield (*G.T.P.*); Ingleton (*C.S.*); Pontefract (*B.H.*); Richmond (*J.Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Cidaria russata *W.V.* Common everywhere and very variable.

Dark forms, including the variety **perfuscata** *Haw.*, are plentiful, much more so than in the southern counties. In Butternab Wood, Huddersfield, I have more than once taken a variety I do not remember to have seen elsewhere: it is darker even than *perfuscata* and quite different in colour; the central band is black on a very dark reddish-brown ground, and with no trace of the usual slaty grey. A figure of the variety, as well as of the Yorkshire form of *perfuscata*, is given in Part xi. of Mosley's Illustrations of Varieties of British Lepidoptera.

Varieties **centum-notata** *Fab.* and **comma-notata** *Haw.*, I believe both occur, but I think not nearly so commonly as the dark forms.

Cidaria immanata *Haw.* Also apparently common throughout the county, and like *C. russata* is very variable, but the tendency of the variation is much paler generally than in that species. Variety **marmorata** *Haw.* may perhaps be taken as a central type of the variation.

Cidaria suffumata *W.V.* Generally distributed and often abundant.

The dark rich brown form **piceata** *Steph.*, sometimes occurs; and in the south West Riding a very beautiful variety with black median band and basal blotch on a pure white ground has been several times taken. The best I have ever seen is in my own cabinet, and was taken at Huddersfield in May 1871. The specimen is figured in the Entomologist of May, 1878, and also in Mosley's Illustrations of Varieties of British Lepidoptera, Part xi.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood!! (*G.T.P.*); Bradford (*J. W.C.*); Bramham! (*J.Sm.*); Easingwold ! (*G.T.*); Huddersfield ! (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wentbridge (*G.T.*); York (*W.P.*).

Cidaria silaceata *W.V.* Not uncommon.

Bishop's Wood ! (*G.T.P.*); Bramham (*J.Sm.*); Huddersfield, rare (*J.V.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Cidaria prunata *L.* Found in gardens among currant bushes.

Bingley (*E.P.P.B.*); Bramham (*J.Sm.*); Grassington (*C.S.*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Richmond (*G.P.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Cidaria testata *L.* Apparently abundant on all heaths, and in woods having an undergrowth of *Calluna vulgaris*, throughout the county.

Cidaria populata *Bork.* Abounds on all the moors and wherever bilberry grows freely in the West Riding.

Barden (*W.D.R.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford ! (*J. W.C.*); Halifax !! (*G.T.P.*); Harrogate (*J. Sang*); Huddersfield !! (*G.T.P.*); Ilkley (*A. Denny*); Leeds (*W.H.T.*); Marsden !! (*G.T.P.*); Pateley Bridge (*G. Jackson*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*); York ! (*Stainton's Manual*).

Cidaria fulvata *Forst.* Common among rose, probably everywhere.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Boroughbridge (*G.T.P.*); Bramham ! (*J.Sm.*); Filey (*G.T.*); Goole (*J. Harrison*); Huddersfield !! (*G.T.P.*); Leeds

(*E.B.*); Micklefield (*C.S.*); Pannal !! (*W.D.R.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Sharlston (*G.T.P.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Cidaria pyraliata *Bork.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Edlington Wood! (*G.T.P.*); Huddersfield (*J.V.*); Leeds (*W.H.T.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Cidaria dotata *L.* Askham Bog (*W.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Wakefield (*W.T.*).

Pelurga comitata *L.* Widely distributed and common. Askham Bog (*W.P.*); Balby near Doncaster (*W.W.*); Barnsley (*W.W.*); Bradford (*J.W.C.*); Bramham! (*J.Sm.*); Goole (*John Harrison*); Huddersfield! (*G.T.P.*); Leeds (*E.B.*); Otley (*C.S.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Eubolia cervinaria *W.V.* Brigg near Selby (*C.S.*); Brough (*G.T.P.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough ! (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wetherby (*C.S.*); York (*J.T.C.*).

Eubolia mensuraria *W.V.* Plentiful almost everywhere, scarce only in some parts of the south West Riding.

Eubolia mæniata *W.V.* A very fine specimen of this species, of which only one or two others are known to have occurred in Britain, was taken by Mr. W. Prest among broom near York, on August 19th, 1866 (*Ent. Ann.*, 1867, *p.* 157).

Eubolia palumbaria *W.V.* Not uncommon on heaths, &c. Adel near Leeds (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford ! (*J.W.C.*); Bramham (*J.Sm.*);

Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*Stainton's Manual*); Sheffield (*A.D.*); Whitby (*W.E.C.*).

Eubolia bipunctaria *W.V.* Common on the cliffs on the coast.

Filey (*G.T.*); Flamborough Head !! (*E.H.*); Richmond (*G.P.H.*); Scarborough ! (*G.T.P.*); York (*Stainton's Manual*).

Carsia imbutata *Hüb.* Common on Thorne Waste, near Goole, which is its only Yorkshire locality (*G.T.P.*, *W.P.*, *S.D.B.*, and *W.W.*).

Anaitis plagiata *L.* Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bramham (*J.W.T.*); Huddersfield (*S.L.M.* and *J.V.*); Ledstone (*C.S.*); Micklefield (*C.S.*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Chesias spartiata *Fab.* Pontefract (*B.H.*); Rastrick near Huddersfield, a specimen brought to me to name in 1878 (*G.T.P.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*G. Wilson*, *Naturalist*, *May*, 1882, *p.* 161); York (*W.P.*, *Ent. W. Int.*, 1860, *p.* 44).

Tanagra chærophyllata *L.* Widely distributed and often abundant.

Barnsley (*J.H.*); Blubberhouses ! (*Lord Walsingham*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Dewsbury (*G.T.P.*); Driffield (*L. B. Ross*); Edlington near Doncaster (*J.H.*); Harrogate (*J. Sang*); Huddersfield !! (*G.T.P.*); Leeds (*E.B.*); Pateley Bridge (*W. Storey*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough !! (*J.H.R.*); Settle (*H. F. Parsons*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

DREPANULÆ.

Platypteryx lacertula *Hüb.* Pontefract (*B.H.*); Scarborough ! (*T. W.*); Sheffield (*A.D.*); Wharncliffe Woods (*W. H. Smith*); York (*Stainton's Manual*).

Platypteryx falcula *W.V.* Adel near Leeds (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford ! (*J. W.C.*); Bramham ! (*J.Sm.*); Doncaster ! (*W. W.*); Huddersfield (*P.I.*); Pontefract (*B.H.*); Scarborough (*T. W.*); Sheffield (*A.D.*); Thorne near Goole (*W.P.*); Wakefield (*W.T.*); York ! (*W.P.*).

Cilix spinula *W.V.* Generally common among hawthorn.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*W.P.*); Bradford (*J. W.C.*); Bramham ! (*J.Sm.*); Huddersfield ! (*G.T.P.*); Leeds ! (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

PSEUDO-BOMBYCES.

Dicranura bicuspis *Bork.* The late Mr. T. Wilkinson sent me this rare species from Scarborough, where he used to take it in some numbers. Records for other localities are as follows :—

Goathland near Whitby (*F.O.M., British Moths*, 1871, ii. 47); Guisborough, several (*W. Jeffrey, Ent. W. Int., Sep.* 11, 1858); Middlesbrough (*Zool.* 1857, xv. 5825); Ripon (*T. Meldrum, Ent. W. Int.*, ix. 107); Yarm, empty cocoons (*W. Lister, Entom.*, 1869, iv. 231); York, one by Mr. Robert Cook in 1859 (*Ent. Ann.*, 1860, *p.* 139); and in 1860 (*T. H. Allis, Ent. W. Int.*, viii. 51).

Dicranura furcula *L.* Bramham! (*J.Sm.*); Headingley near Leeds, one, 1847 (*A. Shipley, Zool.* 1848, vi. 2236); Pontefract (*B.H.*); Richmond (*G.P.H.*, *G.T.P.*, and *J.Sang*); Scarborough, not uncommon (*T.W.*); Selby (*R.H.*); Sheffield (*A.D.*); Whitby! (*W.E.C.*).

Dicranura bifida *Hüb.* Of wider distribution than the last. Askham Bog (*W.P.*); Barnsley (*J.H.*); Bramham! (*J.Sm.*); Doncaster (*W.W.*); Huddersfield (*P.I.*); Pontefract (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough! (*T. W.*); Selby (*R.H.*); Sheffield (*A.D.*); Thorne (*W. W.*); Wakefield (*W.T.*); York! (*T. Wilson*).

Dicranura vinula *L.* Plentiful probably everywhere. Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Bradford! (*J. W.C.*); Bramham! (*J.Sm.*); Bridlington (*M.L.*); Goole (*J. Harrison*); Huddersfield! (*G.T.P.*); Ilkley (*A. Denny*); Leeds! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough!! (*P.I.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Washburn-dale (*W.E.C.*); Whitby!! (*W.E.C.*); York (*T. Wilson*).

Stauropus fagi *L.* A great rarity with us. Taken by Mr. Wm. Bowers near Selby in 1864 (*R. Hebson, Naturalist, Old Series*, 1864, i. 255).

Petasia cassinea *Fab.* Bishop's Wood (*C.S.*); Bramham, common on birch trunks early in November (*J.Sm.*); Doncaster! (*W.W.*); Edlington (*J.H.*); Richmond (*G.P.H.*); Scarborough! (*T. W.*); Sheffield (*A.D.*); York (*W.P.*).

Pygæra bucephala *L.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Boroughbridge (*J.G.*); Bradford (*J. W.C.*); Bramham! (*J.Sm.*); Bridlington (*M.L.*); Goole Moors (*J. Harrison*); Harrogate (*J. W. Speck*); Huddersfield (*G.T.P.*); Ilkley (*W.E.C.*); Leeds

(*E.B.*); Pannal (*W.D.R.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wetherby!! (*W.D.R.*).

Clostera curtula *L.* Only recorded from York (*R.C., Entom., Feb.* 1842; *W.P., Ent. Mo. Mag.*, vii. 256).

Clostera reclusa *W.V.* Also apparently confined to the York district.

Askham Bog (*W.P.*); Strensall Common, the larvæ feed on sallow (*P.I.*).

Ptilodontis palpina *L.* Askham Bog (*W.P.*); Bishop's Wood (*C.S.*); Bramham West Woods (*C.S.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

Notodonta camelina *L.* Generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*W.E.C.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Bramham! (*J.Sm.*); Edlington Wood! (*G.T.P.*); Grassington (*J.H.R.*); Halifax (*G.T.P.*); Huddersfield, not uncommon (*G.T.P.*); Hunslet (*J.P.*); Meanwood near Leeds (*W.H.T.*); Market Weighton (*W.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*G.T.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wharncliffe Woods (*G.T.P.*).

Notodonta dictæa *L.* Askham Bog (*W.P.*); Bramham! (*J.Sm.*); Huddersfield (*J.V.*); Leeds (*A. Denny* and *C.S.*); Pontefract (*B.H.*); Rawmarsh near Rotherham (*F.O.M., Wood's Naturalist, June*, 1837, ii. 166-7); Richmond (*G.P.H.* and *J. Sang*); Scarborough !! (*T.W.*); Selby (*R.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Whitby! (*W.E.C.*); York (*W.P.*).

Notodonta dictæoides *Esp.* Barnsley (*J.H.*); Bingley (*J. A. Butterfield*); Bramham (*W.H.T.*); Huddersfield (*P.I.*); Pontefract (*B.H.*); Rotherham (*W. Thomas*);

Scarborough !! (*T. W.*); Selby (*R. H.* and *T. F.*); Sheffield (*A. D.*); Wakefield (*G. T. P.* and *C. W. R.*); York (*W. P.*).

Notodonta dromedarius *L.* Common and widely distributed. The larvæ feed on birch and alder.

Adel Moor (*G. T.*); Askham Bog (*W. P.*); Barnsley (*J. H.*); Bishop's Wood (*C. S.*); Bradford (*W. H. Cooper*); Edlington Wood (*G. T. P.*); Halifax (*G. T. P.*); Huddersfield ! (*G. T. P.*); Hunslet ! (*J. P.*); Pannal (*W. D. R.*); Richmond (*J. Sang*); Scarborough !! (*T. W.*); Sheffield (*A. D.*); Wakefield ! (*G. T. P.* and *C. W. R.*); Wharncliffe Woods (*G. T. P.*).

Notodonta ziczac *L.* Askham Bog (*W. P.*); Barnsley (*J. H.*); Blubberhouses (*Lord Walsingham*); Bramham ! (*J. Sm.*); Huddersfield (*P. I.*); Hunslet (*J. P.*); Pontefract (*B. H.*); Richmond (*J. Sang*); Scarborough !! (*T. W.*); Selby (*R. H.*); Sheffield (*A. D.*); Wakefield (*W. T.*).

Notodonta trepida *Fab.* Rare.

Bishop's Wood (*R. H.* and *C. S.*); York (*W. P.*); also, according to F. O. Morris, at Doncaster.

Notodonta chaonia *W. V.* I have bred this rather scarce species from larvæ I found crawling down the oak trunks in Edlington Wood (*G. T. P.*). Other reported localities are Bishop's Wood; Pontefract (*B. H.*); Scarborough !! (*T. W.*); Sheffield (*A. D.*); York (*Stainton's Manual*).

Notodonta dodonæa *W. V.* Bishop's Wood (*C. S.*); Scarborough !! (*T. W.*); Sheffield (*A. D.*); York (*W. P.*).

Diloba cæruleocephala *L.* Widely distributed and often common; scarce in some parts of the south West Riding.

Askham Bog (*W. P.*); Barnsley (*J. H.*); Bishop's Wood (*G. T.*); Bramham ! (*J. Sm.*); Brough (*G. T. P.*); Goole (*J. W. C.*); Leeds (*C. S.*); Pontefract (*B. H.*); Raskelf (*G. T.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A. D.*); Thirsk (*G. T.*); Wakefield (*W. T.*).

NOCTUÆ.

Thyatira derasa *L.* Widely distributed and not uncommon. Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*C.S.*); Boroughbridge (*H. Andrews*); Bramham (*J.Sm.*); Doncaster !! (*W.W.*); Goole Barracks (*J. Harrison*); in Holderness, Beverley, &c. ! (*N.F.D.*); Meanwood near Leeds (*C.S.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wharncliffe Woods (*S.L.M.*).

Thyatira batis *L.* Well distributed and rather common. Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood ! (*G.T.P.*); Boroughbridge (*H. Andrews*); Bramham ! (*J.Sm.*); Doncaster ! (*W.W.*); in Holderness, Beverley, &c. ! (*N.F.D.*); Huddersfield (*G.T.P.*); Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*G.T.P.*); Saltaire (*Wardman*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wharncliffe Woods (*S.L.M.*).

Cymatophora duplaris *L.* Askham Bog (*W.P.*); Bishop's Wood ! (*G.T.P.* and *C.S.*); Bramham (*J.Sm.*); Edlington Wood (*J.H.*); in Holderness, Beverley, &c. (*N.F.D.*); Huddersfield (*P.I.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*).

Cymatophora fluctuosa *Hub.* Barnsley (*J.H.*); Rotherham (*Wm. Rodgers*); Sheffield (*A.D.*); Wakefield, occasionally (*H. Sims* and *W.T.*); Wharncliffe Woods ! (*G.T.P.*); York (*T. Wilson*); also recorded from Huddersfield, where I believe it has occurred, although I have never seen it (*G.T.P.*).

Cymatophora diluta *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Doncaster ! (*W.W.*); Meanwood near Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Selby (*T.F.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Cymatophora or *W.V.* Very local.

Scarborough !! (*T.W.*); Sheffield (*A.D.*).

Cymatophora flavicornis *L.* Usually common where there is any extent of birch.

Barnsley (*J.H.*); Bishop's Wood (*W.P.*); Blubberhouses (*W.D.R.*); Bradford ! (*J.W.C.*); Bramham !! (*J.Sm.*); Doncaster! (*W.W.*); Edlington Wood (*G.T.P.*); Huddersfield ! (*G.T.P.*); Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Mr. S. L. Mosley has taken a very pale variety at Huddersfield.

Cymatophora ridens *Fab.* Sheffield (*A.D.*); York (*W.P.*).

Bryophila perla *W.V.* Generally common, often abundant.

Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford ! (*J.W.C.*); Bramham ! (*J.Sm.*); Goole (*J. Harrison*); Huddersfield (*G.T.P.*); Ilkley (*A. Denny*); Leeds !! (*W.H.T.*); Pannal (*W.D.R.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*G.P.H.*); Scarborough !! (*G.T.P.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Acronycta tridens *W.V.* Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bishop's Wood (*J.W.T.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); York (*T. Wilson*).

Acronycta psi *L.* Common everywhere.

Acronycta leporina *L.* Not uncommon.

Barnsley (*J.H.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Edlington Wood (*G.T.P.*); Huddersfield (*G.T.P.*); Hunslet ! (*J.P.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Rotherham (*W. Thomas*); Scarborough (*T.W.*); Selby (*T.F.*); Sheffield (*A.D.*); Wakefield (*G.T.P.* and *W.T.*).

At Beverley (*N.F.D.*) and at York (*W.P.*) the dark form, variety **Bradyporina,** *Tr.*, only occurs, not the pale form.

Acronycta megacephala *W.V.* Askham Bog (*W.P.*); Bishop's Wood (*T.F.* and *C.S.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Huddersfield (*J.V.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*).

Acronycta alni *L.* This species, always considered a great rarity, used to be taken not uncommonly at Scarborough by the late Mr. T. Wilkinson. It has also been taken repeatedly some years at Edlington Wood near Doncaster, and at Haw Park, near Wakefield, in both of which localities as well as about York I have no doubt it might be taken every season if well worked for.

The following records will shew its distribution:— Bishop's Wood (*C.S.*); Bramham, twice on birch (*J.Sm.*); Brantingham near Brough (*Ent. W. Int.*, viii. 195); Doncaster (*W.W.* and others); Edlington Wood (*J.H.* and others); I took a larva there on the upper side of an oak leaf on August 5th, 1882 (*G.T.P.*); Guisborough (*W. Jeffrey, Ent. W. Int.*, iv. 188); Huddersfield, one at sugar by Mr. J. Varley, and one by Mr. F. Dearnley at Nortonthorpe, on June 8th, 1874; Leeds, one in 1858 (*F. Oates, Ent. W. Int., p.* 203); Rotherham, in 1876 (*James Bloor*); Scarborough, not uncommon (*T.W.*); Selby, in 1878 (*T.F.*); Sheffield (*A.D.*), one on June 14th, 1874 (*W. Sheldon, Entom.*, vii. 178); Wakefield, not very uncommon (*W.T., C.W.R., G.T.P.*, and others); York, not uncommon (*W.P.*).

Acronycta ligustri *W.V.* Local.

Beverley! (*N.F.D.*); Bramham (*J.Sm.*); Bramley Fall Wood near Leeds (*E.B.*); Pontefract (*B.H.*); Scarborough !! (*T.W.*); Sheffield, in old list (*A.D.*); York, not uncommon (*W.P.*).

The York specimens generally are so different from southern ones that at first sight I quite failed to recognize some shewn to me by Mr. Prest. The large blotch towards

the costa instead of being white is olive-green, and indeed the upper wings are marbled all over with this olive-green. Mr. N. F. Dobrée says that this variety greatly preponderates about Beverley (*G.T.P.*).

Acronycta rumicis *L.* Abundant everywhere.

The dark variety, **salicis** *Curt.*, is very common at Huddersfield, and doubtless throughout the south West Riding. It also occurs at Doncaster (*W.W.*); Richmond (*G.P.H.*); and Selby (*T.F.*); so is probably as widely distributed as the type.

Acronycta menyanthidis *Esp.* Generally common on heaths and moors, and sometimes in woods containing bilberry and ling, on which the larva feeds.

Bradford !! (*J. W.C.*); Goole (*J. Harrison*); Halifax (*G.T.P.*); Huddersfield ! (*G.T.P.*); Ilkley (*C.S.*); Riccall Common (*G.T.P.*); Richmond (*J. Sang*); Ripon (*T. Meldrum*); Thorne near Goole (*C.S.* and *W.W.*); Saddleworth (*R. S. Edelston*); Sheffield (*A.D.*); Strensall Common, York (*W.P.*).

"The York specimens" says Mr. W. Prest (*Entom.*, x. 129) "are nearly black." Mr. J. Harrison of Goole has also sent me this very dark form from his district.

Leucania conigera *W.V.* Generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bradford ! (*J. W.C.*); Bramham (*J.Sm.*); Dewsbury (*G.T.P.*); Flamborough Head (*E.H.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*G.T.P.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Leucania lithargyria *Esp.* Common, probably everywhere.

Leucania littoralis *Curt.* Abundant at Spurn (*N.F.D.* and *P.W.L.*). Not recorded from elsewhere.

Leucania pudorina *W.V.* Askham Bog (*W.P.*); Bramham (*J.Sm.*); Pontefract (*B.H.*); Scarborough (*T.W.*).

Leucania comma *L.* Not uncommon.

Adel (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bishop's Wood (*G.T.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Raskelf (*G.T.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Leucania impura *Hüb.* Found probably everywhere, aud generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford ! (*J.W.C.*); Flamborough Head (*E.H.*); Goole (*J. Harrison*); Hambleton (*G.T.*); Hook Moor near Aberford (*J.W.T.*); Huddersfield (*G.T.P.*); Leeds (*W.H.T.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Leucania pallens *L.* Abundant everywhere.

A form which I think is the variety **ectypa** *Hüb.* is tolerably common.

Leucania phragmitidis *Hüb.* Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bramham (*J.Sm.*).

Tapinostola elymi *Tr.* Common at Spurn (*N.F.D.* and *P.W.L.*).

Mr. Dobrée informs me that this species comes very freely to light. I have taken it in plenty on the Lincolnshire coast at rest after dark on the stems of marram grass and its food plant *Elymus arenarius*.

Nonagria despecta *Tr.* Not common.

Balby near Doncaster (*W.W.*); Beverley (*N.F.D.*).

Nonagria fulva *Hüb.* Fairly common.

Adel near Leeds (*G.T.*); Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bishop's Wood (*C.S.*); Blubber-

houses (*Lord Walsingham*); Bradford! (*J. W.C.*); Bramham (*J. Sm.*); Haigh! (*G.T.P.*); Huddersfield (*G.T.P.*); Richmond (*G.P.H.*); Scarborough! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Nonagria cannæ *Och.* Mr. P. Inchbald says this species has occurred among bulrush at Shepley Mill near Huddersfield, but I cannot help thinking there is some mistake in connection with it.

Nonagria typhæ *Esp.* Usually not uncommon where *Typha latifolia* grows freely.

Askham Bog (*W.P.*); Beverley! (*N.F.D.*); Huddersfield (*J.V.*); Pontefract (*B.H.*); Roystone near Barnsley (*J.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.* and *C.S.*); Woodlesford (*J.P.*).

Nonagria lutosa *Hüb.* Not uncommon in the eastern division of the county, but a specimen I have in my cabinet, which I took from a gas-lamp in Huddersfield, is the only record of its occurrence in the south West Riding.

Askham Bog (*W.P.*); Balby near Doncaster (*W.W.*); Beverley! (*N.F.D.*); Hull! (*N.F.D.*); Scarborough (*T.W.*); Spurn (*W.E.C.*).

Gortyna flavago *W.V.* Widely distributed and not uncommon. Mr. N. F. Dobrée writes of this species: "In all the specimens I have seen from the East Riding, the size is not more than two-thirds of southern specimens, and the colouring is yellow instead of orange. The difference is so marked that I am surprised that it has not hitherto been noticed in print."

Adel (*C.S.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley! (*N.F.D.*); Bishop's Wood (*G.T.*); Bradford (*J.W.C.*); Doncaster (*W.W.*); Goole (*J. Harrison*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough (*T.W.*); Selby (*G.T.P.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hydræcia nictitans *L.* Plentiful and often very strongly coloured. Very partial to ragwort flowers.

Adel (*A. Denny*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bishop's Wood (*W.P.*); Blubberhouses (*Lord Walsingham*); Bradford! (*J. W.C.*); Bramham (*J.Sm.*); Dewsbury (*G.T.P.*); Huddersfield !! (*G.T.P.*); Ilkley! (*W.E.C.*); Leeds! (*W.H.T.*); Pannal! (*W.D.R.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hydræcia petasitis *Dbl.* Beverley (*N.F.D.*); Huddersfield (*J. V.*); Kirkstall near Leeds (*C.S.*); Scarborough (*T. W.*); on the banks of the Don between Sheffield and Rotherham (*A.D.*); Thorner (*C.S.*); Wakefield! (*W.T.*, *C.S.*, and others).

Hydræcia micacea *Esp.* Generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bradford (*J. W.C.*); Bramham (*J.Sm.*); Huddersfield ! (*G.T.P.*); Leeds !! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Ripon (*J. Waite*); Scarborough !! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Axylia putris *L.* Askham Bog (*W.P.*); Bradford (*J. W C.*); Bramham (*J.Sm.*); Bridlington (*M.L.*); Goole (*J. Harrison*); Huddersfield (*G.T.P.*); Leeds! (*W.H.T.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*G.P.H.*); Scarborough !! (*Stainton's Manual*); Wakefield (*W.T.*); York (*T.H.A.*).

Xylophasia rurea *Fab.* Abundant no doubt everywhere.

In the south West Riding the variety **combusta** *Haw.* is about as plentiful as the type, and many of the specimens are exceedingly rich in colour. Mr. S. L. Mosley says the varieties **alopecurus** *Esp.* and **borealis** also occasionally occur at Huddersfield.

Xylophasia lithoxylea *W.V.* Common, probably throughout the county.

Xylophasia sublustris *Esp.* Not common.

Askham Bog (*W.P.*); once at Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Scarborough (*T.W.*); Wakefield (*W.T.*).

Xylophasia polyodon *L.* Very abundant everywhere.

The black form, variety **infuscata** *White*, is of frequent occurrence both east and west.

Xylophasia hepatica *L.* Widely distributed and not uncommon.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Hambleton (*G.T.*); Huddersfield (*P.I.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Saltaire (—. *Wardman*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Xylophasia scolopacina *Esp.* Not uncommon in well wooded districts.

Barnsley (*J.H.*); Bishop's Wood (*C.S.* and *G.T.*); Bramham (*J.Sm.*); Huddersfield (*P.I.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield, very common at Haw Park some seasons (*G.T.P.*, *W.T.*, and *C.W.R.*); York (*W.P.*).

Neuria saponariæ *Esp.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bishop's Wood (*G.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough ! (*T.W.*).

Heliophobus popularis *Fab.* Not uncommon.

Adel (*C.S.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield, in old list (*A.D.*); Wakefield (*W.T.*).

Charæas graminis *L.* Of general occurrence and often abundant.

Adel Moor (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley! (*N.F.D.*); Bishop's Wood (*J.W.T.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Grassington (*C.S.*); Huddersfield !! (*G.T.P.*); Hunslet (*J.P.*); Ilkley (*A. Denny*); Pateley Bridge (*A. Denny*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Saddleworth (*R. S. Edelston*); Scarborough (*T.W.*); Sheffield, in old list (*A.D.*); Wakefield (*W.T.*).

Cerigo cytherea *Fab.* Askham Bog (*W.P.*); Beverley! (*N.F.D.*); Bramham (*J.Sm.*); Flamborough Head (*E.H.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*).

Luperina testacea *W.V.* Very common, no doubt everywhere. Some good pale varieties occur at Huddersfield.

Luperina cespitis *W.V.* Doncaster (*J.V., Naturalist, N.S.*, ii. 59); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Sheffield (*W. Thomas, Ent. W. Int., Nov.* 3, 1860); Wakefield (*W.T.*); York (*W.P.*).

Mamestra anceps *Hüb.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley! (*N.F.D.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Huddersfield (*S.L.M.*); Pontefract (*B.H.*); Wakefield (*W.T.*).

Mamestra abjecta *Hüb.* Mr. N. F. Dobrée took eleven specimens and missed several others of this local species at the mouth of the Humber in August, 1880. Also recorded from York by Mr. J. T. Carrington (*Ent. Mo. Mag.*, v. 77; also *Ent. W. Int.*, 1860, *p.* 134).

Mamestra albicolon *Hüb.* Common at Spurn (*N.F.D.*).

Mamestra furva *W.V.* Askham Bog (*W.P.*); Barnsley (*W. E. Brady*); Bradford, not common (*J.W.C.*); Hud-

dersfield, rare (*J. V.*); Hull !! (*Stephens' Illustrations*); Scarborough (*Stainton's Manual*); Wakefield (*W. T.*).

Mamestra brassicæ *L.* Very abundant everywhere.

Mamestra persicariæ *L.* Hambleton (*G. T.*); Huddersfield (*G. T. P.*); Goole (*J. Harrison*); Sheffield (*A. D.*); Weeton (*J. P.*).

Apamea basilinea *W. V.* Abundant, probably everywhere.

I have taken some very beautiful strongly coloured specimens at Huddersfield.

Apamea connexa *Bork.* Barnsley (*J. H.*); Scarborough ! (*T. W.*); Sutton-on-Derwent (*Rev. G. R. Read, Ent. W. Int., July* 20, 1861); Wakefield ! (*W. T.*); York (*W. P.*).

Apamea gemina *Hüb.* Common and very variable.

Askham Bog (*W. P.*); Barnsley (*J. H.*); Beverley (*N. F. D.*); Bishop's Wood (*C. S.*); Bradford (*J. W. C.*); Huddersfield ! (*G. T. P.*); Meanwood near Leeds (*W. H. T.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Sheffield (*A. D.*); Wakefield (*W. T.*).

Apamea unanimis *Hüb.* Not uncommon.

Askham Bog (*W. P.*); Barnsley (*J. H.*); Beeston Royds and Thorp Hall (*C. S.*); Beverley (*N. F. D.*); Bradford (*J. W. C.*); Bramham ! (*J. Sm.*); Huddersfield (*G. T. P.*); Leeds (*E. B.*); Sheffield (*Rev. J. Johnson, Zool.*, 1847, v. 1659); Wakefield (*W. T.*).

Apamea fibrosa *Hüb.* Very local.

Askham Bog ! (*W. P.*); Beverley (*N. F. D.*); Doncaster, two, in different years (*George Tindall*); Scarborough (*T. W.*); Wakefield (*W. T.*).

Apamea oculea *L.* Abundant everywhere and exceedingly variable.

Mr. S. L. Mosley has taken varieties **didyma** *Bork.*, **l-nigra** *Haw.*, and **rava** *Haw.*, at Huddersfield, and probably all the named varieties are generally plentiful.

Miana strigilis *L.* Abundant everywhere and very variable. Varieties **latruncula** *Hüb.* and **Æthiops** *Haw.* are very plentiful in the West Riding (*G.T.P.*).

Miana fasciuncula *Haw.* Abundant, both red and brown forms being equally plentiful.

Miana literosa *Haw.* Widely distributed and common. Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bingley (*E.P.P.B.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Flamborough Head ! (*E.H.*); Huddersfield !! (*G.T.P.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Rastrick (*G.T.P.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough !! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Miana furuncula *W.V.* Not very common. Barnsley (*J.H.*); Huddersfield (*P.I.*); Leeds (*E.B.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*F.O.M.*, *Brit. Moths*, 1871, 116).

Miana expolita *Stainton.* Mr. E. P. P. Butterfield took a specimen at Grassington on the Yorkshire Naturalists' Union's visit there, August 7th, 1882, and this appears to be the only known occurrence of the species in the county.

Miana arcuosa *Haw.* Common. The female is very sluggish, but may readily be found by searching the stems of the food plant, *Aira cæspitosa*, with a light after dark. Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bingley (*E.P.P.B.*); Bishop's Wood (*G.T.*); Blubberhouses (*Lord Walsingham*); Bradford ! (*J.W.C.*); Bramham ! (*J.Sm.*); Flamborough Head (*E.H.*); Halifax (*G.T.P.*); Huddersfield !! (*G.T.P.*); Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Celæna Haworthii *Curt.* Abundant on the damp parts of the West Riding Moors where the cotton grass grows freely. Askham Bog (*W.P.*); Bradford (*J.W.C.*); Deerhill, Huddersfield! (*G.T.P.*); Hebden Moors near Grassington !! (*C.S.*); Marsden !! (*G.T.P.*); Penistone (*J.H.*); Richmond (*J. Sang*); Rombalds Moor (*E.P.P.B.*); Saddleworth (*R. S. Edelston*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Grammesia trilinea *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley! (*N.F.D.*); Bramham! (*J.Sm.*); Huddersfield (*P.I.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hydrilla palustris *Hüb.* The following note on this species appears in the Entomologist's Annual for 1855, p. 37:— "A specimen taken near York is in the collection of Mr. Allis." Stainton's Manual gives "Compton's Wood near York" as the locality.

Caradrina Morpheus *Naturf.* Askham Bog (*W.P.*); Huddersfield (*G.T.P.*); Leeds! (*W.H.T.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*G.P.H.*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Caradrina Alsines *Bork.* Askham Bog (*W.P.*); Beverley! (*N.F.D.*); Blubberhouses (*Lord Walsingham*); Bradford (*J.W.C.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Caradrina blanda *W.V.* Askham Bog (*W.P.*); Beverley (*N.F.D.*); Bramham (*J.Sm.*); Huddersfield (*P.I.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*).

Caradrina cubicularis *W.V.* Very common everywhere.

Rusina tenebrosa *Hüb.* Common.

Askham Bog (*W.P.*); Beverley, common, the specimens not being so dark as Scotch examples (*N.F.D.*); Bishop's Wood (*G.T.*); Bradford (*J. W.C.*); Edlington Wood (*J.H.*); Huddersfield ! (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Agrotis valligera *W.V.* A coast species generally, but occasionally found inland.

Balby near Doncaster, two specimens (*W. W.*); Bradford, one at light (*J. W.C.*); Bramham (*J.Sm.*); Redcar (*J. Sang*); Selby (*K.R.*); Spurn !! (*N.F.D.* and *P. W.L.*).

Agrotis puta *Hüb.* Morris (*British Moths*, 1871, ii. 124) gives Sutton-on-Derwent as a locality for this species, but I know of no other Yorkshire record.

Agrotis suffusa *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bingley ! (*E.P.P.B.*); Bradford (*J. W.C.*); Huddersfield (*J.V.*); Ilkley ! (*E.B.*); Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Agrotis saucia *Hüb.* Not common.

Beverley (*N.F.D.*); Huddersfield (*J.V.*); Leeds (*W.H.T.*); Richmond (*G.P.H.*); Scarborough, some seasons common (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

Agrotis segetum *W.V.* Common everywhere, but not so plentiful as *A. exclamationis*.

Agrotis exclamationis *L.* Very abundant everywhere.

Agrotis corticea *W.V.* Not generally common.

Adel near Leeds (*G.T.*); Askham Bog (*W.P.*); Scarborough (*T. W.*); Spurn !! (*N.F.D.* and *P. W.L.*).

Agrotis ripæ *Hüb.* Common at Spurn, but differs considerably from the southern form (*N.F.D.* and *P. W.L.*).

Agrotis cursoria *Bork.* Common at the mouth of the Humber, but they are much darker than southern specimens (*N.F.D.*); Spurn !! (*P.W.L.*).

Agrotis nigricans *L.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*).

Agrotis tritici *L.* Adel Moors ! (*W.H.T.*); Askham Bog (*W.P.*); Barnsley, rare (*J.H.*); Flamborough Head (*E.H.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Scarborough ! (*Stainton's Manual*); Spurn !! (*N.F.D.* and *P.W.L.*).

Agrotis aquilina *W.V.* Askham Bog (*W.P.*); Scarborough! (*Stainton's Manual*); Spurn !! (*N.F.D.* and *P.W.L.*).

Agrotis obelisca *W.V.* Scarborough, not uncommon (*T.W.*); York (*W.P.*, *Ent. W. Int.*, 1860, *p.* 44).

Agrotis agathina *Dup.* The larvæ are often common in suitable heathery situations, but the imago is comparatively seldom seen.

Adel Moors ! (*W.H.T.*); Bingley ! (*E.P.P.B.*); Bradford (*J.W.C.*); Huddersfield (*G.T.P.*); Richmond (*J. Sang* and *G.P.H.*); Scarborough !! (*T.W.*); Sheffield (*A.D.*); York (*W.P.*).

Agrotis porphyrea *W.V.* Very common on all heaths.

Agrotis præcox *L.* Spurn (*N.F.D.* and *P.W.L.*); once at York (*Ent. W. Int.*, 1860, *p.* 134).

Agrotis ravida *W.V.* Rare, except on the coast.

Askham Bog (*W.P.*); Balby near Doncaster, one (*W.W.*); Scarborough, sometimes abundant (*T.W.*); Spurn !! (*N.F.D.* and *P.W.L.*); Wakefield (*W.T.*).

Agrotis pyrophila *W.V.* Excessively rare.

"Has occurred at York" (*Stainton's Manual*); is also mentioned in an old list of Sheffield species, but this record needs confirmation.

Agrotis lucernea *L.* Very rare, but I have seen several specimens taken at Huddersfield by different collectors. Mr. Carter sent me one to name from Bradford: and another was brought to me for the same purpose from Brighouse.

Tryphæna janthina *W.V.* Not uncommon.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bingley (*E.P.P.B.*); Bishop's Wood (*W.P.*); Boroughbridge (*H. Andrews*); Bradford (*J. W.C.*); Bramham ! (*J.Sm.*); Doncaster (*G.T.P.*); Huddersfield (*G.T.P.*); Ilkley (*A. Denny*); Meanwood near Leeds ! (*W.H.T.*); Pannal ! (*W.D.R.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Tryphæna fimbria *L.* Common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley, very scarce (*N.F.D.*); Bradford ! (*J. W.C.*); Doncaster (*F.O.M., Neville Wood's Naturalist, May*, 1837, ii. 83-85); Huddersfield! (*G.T.P.*); Hunslet (*J.P.*); Meanwood near Leeds! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Scarborough ! (*T. W.*); Selby (*R.H.* and *T.F.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Tryphæna interjecta *Hüb.* Askham Bog (*W.P.*); Beverley, very scarce (*N.F.D.*); Bramham (*J.Sm.*); Pannal (*W.D.R.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Sheffield (*A.D.*).

Tryphæna subsequa *W.V.* Mr. George Brook, F.L.S., of Huddersfield, took a specimen on the sand-hills at Redcar in July, 1875, which is the only one I have seen.

Tryphæna orbona *Fab.* Common everywhere.

Mr. N. F. Dobrée says some of the specimens taken in Holderness nearly approach the variety **Curtisii.**

Tryphæna pronuba *L.* Abundant everywhere, and most variable in colour.

Noctua glareosa *Esp.* Common in woods where ling grows freely, and found also in other situations, as the larva does not confine itself to ling.

Adel near Leeds! (*W.H.T.*); Barnsley (*J.H.*); Bingley !! (*E.P.P.B.*); Bradford ! (*J.W.C.*); Huddersfield ! (*G.T.P.*); Ilkley !! (*E.B.*); Richmond (*G.P.H.*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

An extraordinary variety having the wings of a rich chocolate-brown colour was taken by Mr Joseph Jackson near Barnsley in 1873. It was sent to me to name, as its captor quite failed to recognise it (See *Ent. Mo. Mag.*, *Jan.*, 1874, x. 181).

Noctua depuncta *L.* Very local.

Doncaster (*Hugh Reid*, *Zool.*, 1845, iii. 1199); Leyburn (*J. Sang*); Richmond (*G.P.H.*); Scarborough, sometimes abundant (*T.W.*).

Noctua augur *Fab.* Very common, no doubt everywhere.

Noctua plecta *L.* Common, probably everywhere.

Noctua C-nigrum *L.* Generally distributed and rather common.

Askham Bog (*W.P.*); Balby !! (*W.W.*); Barnsley, rare (*J.H.*); Beverley ! (*N.F.D.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Flamborough Head (*E.H.*); Goole (*J. Harrison*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Pontefract (*B.H.*); Rastrick (*G.T.P.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Ripon (*J. Waite*); Wakefield (*W.T.*); Wharncliffe Woods (*S.L.M.*).

Noctua triangulum *Och.* Not very common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Noctua rhomboidea *Tr.* A very local species with us.

Richmond (*G.P.H.*); Scarborough, taken plentifully on Oliver's Mount (*T. W.*).

Noctua brunnea *W.V.* Abundant throughout the West Riding, and probably equally so elsewhere.

Noctua festiva *W.V.* Abundant in most places, and no doubt common everywhere.

Noctua conflua *Tr.* This, by some considered only a variety of *N. festiva*, occurs, Mr. Sang says, on the heaths or mosses at Richmond. I am not sure that I have not seen it on the West Riding moors, and possibly it occurs in other moorland districts, but is generally passed over as *N. festiva.*

Noctua Dahlii *Hüb.* The Bradford district seems to be headquarters for this rather local species: some seasons it visits the ragwort flowers there in profusion, and some nice varieties may be picked out.

Barnsley (*J.H.*); Bingley ! (*E.P.P.B.*); Bradford !! (*J. W.C.*); Huddersfield (*S.D.B.* and others); Meanwood near Leeds ! (*W.H.T.*, *C.S.*, and *G.T.*); Richmond (*G.P.H.*); Sheffield (*A.D.*).

Noctua rubi *Vieweg.* Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bramham (*J.Sm.*); Huddersfield (*J.V.*); Meanwood near Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*).

Noctua umbrosa *Hüb.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bishop's Wood (*W.P.*); Bradford ! (*J. W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Meanwood near Leeds ! (*W.H.T.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough !! (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Noctua baja *W.V.* Common, probably everywhere.

Noctua neglecta *Hüb.* Adel Moor near Leeds (*C.S.* and *G.T.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); York (*W.P.*).

Noctua xanthographa *W.V.* Abundant everywhere, and very variable in colour, in the West Riding.

Trachea piniperda *Esp.* Adel Blackmoor (*Walter Buckton*); Beverley, common, "the green variety also occurs in some quantity" (*N.F.D.*); Bramham ! (*J.Sm.*); Doncaster (*W.W.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.*).

Tæniocampa gothica *L.* Abundant everywhere.

The variety **gothicina** *H.S.*, is reported from Ackworth, Bishop's Wood, Gledhow and Meanwood; and I think I have seen it at Huddersfield.

Tæniocampa leucographa *W.V.* Not of general occurrence.

Bishop's Wood (*J.G.*); Conisborough (*J.H.*); Doncaster !! (*J. R. Hawley, Zool.*, 1846; and *Joseph Wragg, Ent. W. Int.*, 1859); Richmond (*G.P.H.*); Scarborough (*T.W.*); York (*W.P.*).

Tæniocampa rubricosa *W.V.* Common everywhere and abundant in the south West Riding.

Tæniocampa instabilis *W.V.* Very abundant, and no doubt all the named varieties are common.

Tæniocampa opima *Haw.* This species was first added to the British list from specimens taken at York by Mr. T. H. Allis in 1842. Mr. Prest says "the York specimens are much darker than the Cheshire coast forms." This may be so generally, but I have taken specimens on the Wallasey sandhills quite as dark as the York examples. Other localities are: Doncaster ! (—. *Evans, Ent. Ann.*, 1855, *p.* 32; and *J. R. Hawley, Zool.*, 1846); Richmond (*G.P.H.* and *J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Tæniocampa populeti *Fab.* Askham Bog (*W.P.*); Bishop's Wood (*W.P.*); Bramham ! (*J.Sm.*); Conisborough (*W.W.*); Doncaster (*J. R. Hawley* and *W.W.*); Huddersfield, very scarce (*G.T.P.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); near York (*W.P.*).

Tæniocampa stabilis *W.V.* Plentiful everywhere, both red and grey forms.

Tæniocampa gracilis *W.V.* Askham Bog (*W.P.*); Beverley, scarce (*N.F.D.*); Bramham ! (*J.Sm.*); Doncaster (*J. R. Hawley, Zool.*, 1846, *p.* 1353); Driffield (*L. B. Ross*); Halifax (*A. H. Davis, Loudon's Mag. Nat. Hist.*, 1832, *p.* 245); Huddersfield (*J.V.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Tæniocampa miniosa *W.V.* This very pretty species is scarce with us. The larvæ when young feed gregariously on oak.

Doncaster (*J. R. Hawley, Zool.*, 1846, *p.* 1353); Huddersfield (*J.V.*); Sheffield (*A.D.*); York (*Stainton's Manual*).

Tæniocampa munda *W.V.* Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bishop's Wood (*J.G.*); Bramham ! (*J.Sm.*); Doncaster !! (*J. R. Hawley, Zool.*, 1846, *p.* 1353); Huddersfield (*P.I.*); Leeds, at Bramley Fall Wood (*G.T.*); Pontefract (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Tæniocampa cruda *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford ! (*J.W.C.*); Bramham (*J.Sm.*); Doncaster (*J. Hawley*); Halifax (*A. H. Davis*); Huddersfield (*G.T.P.*); Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Thirsk (*G.T.*); Wakefield (*W.T.*).

Orthosia suspecta *Hüb.* Rather common, in some localities abundant. The species was first added to the British list from specimens taken at York by Mr. T. H. Allis (*Ent. Ann.*, 1855, *p.* 32). Some seasons it abounds in the Bradford district, and perhaps can be taken more plentifully there than anywhere.

Barnsley (*J.H.*); Bingley (*E.P.P.B.*); Bradford !! (*J.W.C.*); Doncaster (*S. Stevens, Zool.*, 1847, v. 1788); Halifax (*G.T.P.*); Huddersfield ! (*G.T.P.*); Meanwood near Leeds (*W.H.T.*); Sheffield (*A.D.*); York, abundant both at Askham Bog and Sandburn (*W.P.*).

Orthosia hypsilon *W.V.* Common amongst old willows and poplars. The larvæ may often be found huddled together in dozens by stripping off the loose bark of old willows in the daytime; or they may be collected as they rapidly ascend the trunks to feed after dusk.

Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bishop's Wood (*W.P.*); Bramham ! (*J.Sm.*); Goole (*J. Harrison*); Huddersfield !! (*G.T.P.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Orthosia lota *L.* Not uncommon.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bingley (*E.P.P.B.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Orthosia macilenta *Hüb.* Common in woods.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bingley (*E.P.P.B.*); Bradford (*J.W.C.*); Bramham (*J.Sm.*); Huddersfield ! (*G.T.P.*); Ilkley !! (*E.B., Zool.*, 1866); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Anchocelis rufina *L.* Also common in woods.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford ! (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Ilkley (*E.B.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough !! (*Stainton's Manual*); Selby (*T.F.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Anchocelis pistacina *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bramham ! (*J.Sm.*); Garforth (*C.S.*); Huddersfield (*J.V.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Sheffield (*W. Thomas*); Wakefield (*W.T.*).

Anchocelis lunosa *Haw.* Not generally common.

Beverley ! (*N.F.D.*); Huddersfield (*P.I.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Wakefield (*W.T.*); York, one specimen (*W.P.*).

Anchocelis litura *L.* Common everywhere.

Cerastis vaccinii *L.* Abundant everywhere, except perhaps on some of the exposed parts of the coast.

Cerastis spadicea *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bramham ! (*J.Sm.*); Brantingham (*R. C. Kingston, Zool., Jan.*, 1866); Huddersfield (*S.L.M.* and *J.V.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Scopelosoma satellitia *L.* Generally common.

Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Doncaster (*J. Hawley*); Huddersfield (*G.T.P.*); Meanwood near Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*J. Birks*).

Xanthia citrago *L.* Not uncommon in some districts among limes.

Barnsley (*J.H.*); Bramham ! (*J.Sm.*); Bretton ! (*G.T.P.*); Farnley near Leeds (*C.S.*); Huddersfield (*J.V.*); Pontefract (*B.H.*); Richmond (*G.P.H.*); Rotherham (*W. B. Pryer, Ent. W. Int., June* 8, 1861); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Xanthia cerago *W.V.* Common among sallow.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley, "common, but rather small in size" (*N.F.D.*); Bingley (*E.P.P.B.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Meanwood near Leeds ! (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough !! (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

The variety **flavescens** *Esp.* occurs at Huddersfield, and probably wherever the ordinary form is found.

Xanthia silago *Hüb.* Common; the larvæ of this and *X. cerago* may often be beaten freely out of sallows in spring, or collected in the catkins.

Adel ! (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bradford (*J. W.C.*); Bramham ! (*J.Sm.*); Huddersfield ! (*G.T.P.*); Meanwood near Leeds (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T. W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Xanthia aurago *W.V.* A great rarity.

Sheffield (*J. Batty* and *A.D.*); taken at Sheffield in 1859 by Mr. W. Laycock (*Ent. Ann.*, 1860, *p.* 139); "Has occurred at York" (*Stainton's Manual*).

Xanthia gilvago *Esp.* This species was first added to the British list from specimens taken at Doncaster by Mr. Hugh Reid, and is still to be taken there as freely probably as in any other locality in Britain. The elm hedges on the way to and near Edlington Wood are well known collecting grounds for it.

Beverley (*N.F.D.*); Bramham (*J.Sm.*); Doncaster ! (*J.H.*, *G.T.P.*, *W.P.*, and others); Hull (*J. W. Boult*); Ledstone and Micklefield (*C.S.*); Pontefract (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Rotherham (*Stainton's Manual*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*W.P.* and *T. Wilson*).

Xanthia ferruginea *W.V.* Generally common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford ! (*J. W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*G.T.P.*); Ilkley !! (*E.B.*); Leeds ! (*W.H.T.*); Mirfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Cirrædia xerampelina *Hüb.* Local, but usually not uncommon where it occurs.

Bedale (*W. Culverwell, Ent. W. Int.*, 1859, *p.* 4); Beverley ! (*N.F.D.*); Bramham (*C.S.*); Doncaster (*W. W.*); Newton Kyme (*C.S.*); Pontefract, not uncommon (*B.H.*); Richmond (*G.P.H.* and *J. Sang*); Scarborough, not uncommon (*T. W.*); Sheffield (*A.D.*); Wetherby ! (*C.S.*); York (*W.P.*).

Mr. Prest says the beautiful variety **unicolor** occurs at York.

Tethea subtusa *W.V.* The larvæ may sometimes be collected freely from poplars, but the imago is seldom seen at large.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Bishop's Wood (*G.T.P.*); Bramham (*J.Sm.*); Huddersfield ! (*G.T.P.*); Richmond (*G.P.H.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Tethea retusa *L.* We have only one locality for this local species. Askham Bog (*W.P.*).

Euperia fulvago *W.V.* Very rare. Mr. J. Harrison took one on Sept. 8th, 1875, at Barnsley; and Mr. W. Prest took one at Doncaster in 1881.

Cosmia trapezina *L.* Abundant everywhere, and very variable in the West Riding.

Cosmia diffinis *L.* Scarce.

Doncaster (*F.O.M.*, *British Moths*, 1871, ii. 177); Sheffield (*A.D.*); Wakefield (*W.T.*).

Cosmia affinis *L.* Barnsley (*J.H.*); Beverley (*N.F.D.*); Doncaster (*F.O.M.*, *British Moths*, 1871, ii. 177); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*R.C.*).

Eremobia ochroleuca *W.V.* Rare.

Huddersfield (*J.V.*); York, "in 1869 on flowers of *Senecio jacobæa*" (*T. Wilson*, *Ent. Mo. Mag.*, *Dec.* 1870, vii. 161).

Dianthæcia carpophaga *Bork.* Larvæ feed in seed capsules of *Silene inflata.*

Leeds (*E.B.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Rotherham (*W. Rodgers*); Scarborough! (*T.W.*); Sheffield (*A.D.*); York! (*T. Wilson*).

Dianthæcia capsincola *W.V.* Rather common.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley! (*N.F.D.*); Bradford (*J.W.C.*); Flamborough Head (*E.H.*); Huddersfield (*G.T.P.*); Leeds (*E.B.*); Meanwood (*C.S.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Rotherham (*W. Rodgers*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Dianthæcia cucubali *W.V.* Larvæ in seed capsules of *Silene inflata.*

Askham Bog (*W.P.*); Barnsley (*J.H.*); Huddersfield (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Rotherham (*W. Rodgers*, *Ent. W. Int.*, *Aug.* 21, 1858); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York, larvæ in seed capsules of *Lychnis flos-cuculi* (*T. Wilson*).

Dianthæcia conspersa *W.V.* Very local.

Scarborough, not uncommon (*T.W.*); York (*Stainton's Manual*).

Hecatera serena *W.V.* Mr. Dobrée says it occurs at Beverley, but is scarce. We have no other recorded locality.

Polia chi *L.* Abundant in the West Riding, and common no doubt everywhere.

The variety **olivacea** *Steph.* occurs at Bradford (*J.W.C.*); Huddersfield (*G.T.P.*); Richmond (*G.P.H.*); and probably wherever the species occurs in plenty.

Polia flavocincta *L.* Widely distributed and common.

Adel (*W.H.T.*); Askham Bog (*W.P.*); Beverley ! (*N.F.D.*); Bradford (*J.W.C.*); Huddersfield !! (*G.T.P.*); Meanwood near Leeds (*W.H.T.*); Richmond (*J. Sang*); Scarborough !! (*Stainton's Manual*); Wakefield (*W.T.*).

The form found at Huddersfield, where the species is abundant, is the dark variety **meridionalis** *Boisd.*, and the type of the species does not seem to occur at all. No doubt the variety represents the species in the south West Riding generally, but whether it extends to other parts of the county I do not know (See *Naturalist, March*, 1881, p. 122). I have a very beautiful variety, almost black, which I took in my garden at sugar, September 17th, 1879 (*G.T.P.*).

Dasypolia Templi *Thunb.* Our county has always been considered head-quarters for this moth, and by far the majority of cabinets in the country have been supplied with specimens from the south West Riding, in some parts of which it is often very common.

Beverley, in 1881 (*N.F.D.*); Bingley, in 1882 (*E.P.P.B.*); Bradford (*J. Hirst*); Denby !! (*G.T.P.*); Doncaster (*Hugh Reid, Zool.*, 1845, iii. 1199); Elland (*G.T.P.*); Huddersfield ! (*G.T.P.*); Keighley (*C.S.*);

Penistone (*J.H.*); Pontefract (*B.H.*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*Stainton's Manual*).

Epunda lutulenta *W.V.* Very rare.

York (*W.P.*, *Ent. Mo. Mag.*, *April*, 1871, vii. 257).

Epunda nigra *Haw.* The Rev. F. O. Morris gives Stockton Forest and Sutton-on-Derwent near York as localities, but both require confirmation.

Epunda viminalis *Fab.* Rather common.

The very dark form, variety **obscurior** *Haw.*, seems to predominate all through the county. I have bred it from Huddersfield larvæ almost perfectly black.

Askham Bog (*W.P.*); Bishop's Wood (*J.W.T.*); Bramham ! (*J.Sm.*); Huddersfield ! (*G.T.P.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Epunda lichenea *Hüb.* Seems only to occur at Scarborough, where it is common (*T.W.*).

Miselia oxyacanthæ *L.* Common everywhere.

The dark form, variety **capucina** *Mill.*, is common at Huddersfield, and probably always occurs in more or less plenty with the ordinary type.

Agriopis aprilina *L.* Barnsley (*J.H.*); Beverley ! (*N.F.D.*); Bradford (*J.W.C.*); Bramham ! (*J.Sm.*); Edlington Wood (*G.T.P.*); Horsforth (*J.P.*); Huddersfield (*P.I.*); Ilkley !! (*E.B.*, *Zool.*, 1866); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); York (*J. Birks*).

Phlogophora meticulosa *L.* Plentiful everywhere.

Euplexia lucipara *L.* Common everywhere.

Aplecta herbida *W.V.* Beverley ! (*N.F.D.*); Bradford (*W. Hodgson*); Bramham (*J.Sm.*); Doncaster (*W.W.*); Edlington Wood (*J.H.*); Huddersfield (*S.L.M.* and

J.V.); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough ! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wharncliffe Woods ! (*S.L.M.*); York, common in some seasons (*W.P.*).

Aplecta occulta *L.* Generally scarce, but in 1880 occurred all over the county, in some localities in plenty. Both pale and dark forms occur.

Barnsley (*J.H.*); Beverley (*N.F.D.*); Bradford (*J.W.C.*); Doncaster (*W.W.*); Huddersfield (*G.T.P.*); Hull, thirteen in 1880 (*N.F.D.*); Langwith near York (*F.O.M.*, *British Moths*, 1871, iii. 13); Sheffield, in old list (*A.D.*); Whitby, in 1880 (*C. S. Snell*); York, abundant in 1880, scarce previously (*W.P.*).

Aplecta nebulosa *Tr.* Not uncommon.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bradford ! (*J.W.C.*); Bramham (*J.Sm.*); Edlington Wood (*J.H.*); Flamborough Head (*E.H.*); Huddersfield (*J.V.*); Meanwood ! (*W.H.T.*); Pontefract (*B.H.*); Scarborough !! (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*); Wharncliffe Woods ! (*S.L.M.*).

Aplecta tincta *Bork.* Recorded from Edlington, Doncaster, by Mr. W. Warren. We have no other locality.

Aplecta advena *W.V.* Very rare.

Askham Bog (*W.P.*); Sheffield (*A.D.*).

Hadena adusta *Esp.* Askham Bog (*W.P.*); Bingley (*J. A. Butterfield*); Edlington, Doncaster (*J.H.*); Huddersfield, not uncommon (*G.T.P.*); Leeds (*E.B.*); Meanwood (*W.H.T.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Scarborough (*T.W.*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hadena protea *W.V.* Askham Bog (*W.P.*); Barnsley (*J.H.*); Beverley (*N.F.D.*); Bingley (*E.P.P.B.*); Bradford ! (*J.W.C.*); Bramham ! (*J.Sm.*); Huddersfield (*J.V.*); Pontefract (*B.H.*); Richmond (*J. Sang*); Sheffield (*A.D.*); Wakefield (*W.T.*).

Hadena glauca *Kleem.* Adel Moors near Leeds (*W.H.T.*); Bingley (*E.P.P.B.*); Bradford ! (*J. W.C.*); Halifax (*T. Mellor*); Huddersfield (*G.T.P.*); Ilkley (*E.B.*); Penistone (*J.H.*); Richmond (*J. Sang*); Saddleworth (*R. S. Edelston*); Scarborough (*T. W.*); Sheffield (*A.D.* and *W. W.*).

Hadena dentina *W.V.* Common, no doubt everywhere.

Hadena chenopodii *W.V.* Only recorded from Sheffield (*A.D.*); and Wakefield (*W.T.*).

Hadena suasa *W.V.* Rare, but rather widely distributed.

Askham Bog (*W.P.*); Barnsley (*J.H.*); Doncaster, "near the river side" (*A. J. Evans, Zool.*, 1846, iv. 1227); Huddersfield (*P.I.*); Redcar (*J. Sang*); Sheffield (*Ent. Mo. Mag., Nov.*, 1866, iii. 136).

Hadena oleracea *L.* Abundant everywhere.

Hadena pisi *L.* Generally common, but Mr. Dobrée says "it does not occur in Holderness."

Adel Moors ! (*W.H.T.*); Askham Bog (*W.P.*); Barnsley (*J.H.*); Bradford ! (*J. W.C.*); Bramham ¡ (*J.Sm.*); Huddersfield (*G.T.P.*); Ilkley (*A. Denny*); Leeds !! (*E.B.*); Pontefract (*B.H.*); Redcar (*J. Sang*); Richmond (*J. Sang*); Scarborough (*J.H.R.*); Sheffield (*A.D.*); Thorne (*W.P.*); Wakefield (*W.P.*).

Hadena thalassina *Naturf.* Very plentiful everywhere.

Hadena contigua *W.V.* Mr. R. Cook records the species as occurring at York, but I know no other locality.

Hadena genistæ *Bork.* Recorded from Bramham (*J.Sm.*); and York (*R.C., Entom, Feb.*, 1842).

Hadena rectilinea *Esp.* Scarce.

Huddersfield (*J.V.*); Sheffield (*A.D.*).

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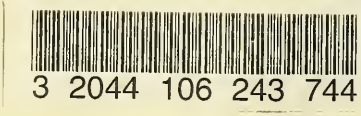
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